ANNUAL REPORT

Provincial Board of Health

1919

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Thirty-Eighth Annual Report

OF THE

Provincial Board of Health

OF

Ontario, Canada

FOR THE YEAR

1919

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO:
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1920

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To His Honour LIONEL H. CLARKE, ESQ., etc., etc., etc.,

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

I herewith beg to present for your consideration the Thirty-Eighth Annual Report of the Provincial Board of Health for the year 1919.

Respectfully submitted,

W. R. ROLLO,
Minister of Labour and Health.

Toronto, March 24th, 1920.

To the Honourable Walter R. Rollo, Minister of Labour and Health.

Sir,—I have the honour to submit for your approval the Thirty-Eighth Report of the Provincial Board of Health, made in conformity with and under the provisions of the Public Health Act, for the year 1919.

I have the honour to be, Sir,

Your obedient servant,

John W. S. McCullough,
Chief Officer of Health.

Toronto, March 24th, 1920.

PROVINCIAL BOARD OF HEALTH OF ONTARIO, 1919

The Board:

Adam H. Wright, M.D., M.R.C.S., Eng., Chairman	Toronto.
Henry R. Casgrain, M.D.	Windsor.
Thomas E. Kaiser, M.D.	Oshawa.
William H. Howey, M.D.	Sudbury.
Arthur S. McElroy, M.D.	Ottawa.
James Roberts, M.D., M.O.H.	Hamilton.

Executive Officers:

John W. S. McCullough, M.D., D.P.H. (Tor.), Secretary and Chief Officer of Health.
R. W. Bell, M.D., Provincial Medical Inspector.
Alex. R. White, Sanitary Inspector, North Bay.

Venereal Disease Division:

R. R. McClenahan, B.A., M.B.

Laboratory Service:

H. M. Lancaster, B.A.Sc., Provincial Chemist, Professor of Chemistry, Dental College, University of Toronto.
R. W. Naylor, M.B., Assistant Bacteriologist.
A. R. Bonham, B.A.Sc., Chemist.
W. T. Connell, M.D., Branch Laboratory, Kingston.
A. J. Slack, Ph.C., Branch Laboratory, London.
N. O. Thomas, M.D., Branch Laboratory, Fort William.

Engineering Service:

F. A. Dallyn, C.E. (Tor.), A.M. Can. Soc. C.E., Provincial Sanitary Engineer.
A. V. DeLaporte, B.A.Sc., Chemist in Charge of Experimental Station.

Child Welfare Bureau:

Miss Mary Power, B.A.
Miss B. Knox, Nurse.

District Officers of Health:

District.
No. 1.—Frederick Guest, M.D., London.
No. 2.—Thomas J. McNally, M.D., London.
No. 3.—Daniel A. McClenahan, M.D., Hamilton.
No. 4.—George Clinton, M.D., Belleville.
No. 5.—Paul J. Moloney, M.D., Cornwall.
No. 6.—W. Egerton George, M.D., North Bay.
No. 7.—Robert E. Wodehouse, M.D., Fort William.

Telephone No. Main 5800.

CONTENTS

PAGE

1. Résumé of the Transactions of the Board, 1919 1

2. Report on Venereal Diseases from October to December 31st, 1919 6

3. Table of Deaths from Communicable Diseases, 1919 7

4. Statement of Biological Products 8

5. Reports of District Officers of Health 10
   District No. 1, Dr. T. J. McNally 10
   District No. 2, Dr. T. J. McNally 10
   District No. 3, Dr. D. A. McClenahan 14
   District No. 4, Dr. George Clinton 17
   District No. 5, Dr. P. J. Moloney 19
   District No. 6, Dr. W. E. George 21
   District No. 7, Dr. W. E. George 22
   and Dr. R. E. Wodehouse 29

6. Report of the Bureau of Child Welfare, Miss Mary Power, B.A. 33
   Report of Nurse in Charge 35

7. Report of Provincial Medical Inspector, R. W. Bell, M.D. 46
   Re Smallpox 46

8. Report of the Provincial Sanitary Engineer, F. A. Dallyn, C.E. 49
   Municipal Water Supplies, Ontario 50
   Gananoque 53
   Georgetown Water Supply 54
   Grimsby "Village Inn" 56
   Kincardine 57
   Lindsay Sewage and Sewage Disposal 62
   Midland Water Supply 63
   Welland and Niagara District Water Supplies 65
   Certificates Issued *re* Sewer Extensions, Disposal Works and New Sewers in 1919 68
   Certificates Issued *re* Water Mains, Purification, etc., for the Year 1919 69

9. Report of the Provincial Sanitary Inspector, A. R. White 70

10. Report of Provincial Board of Health Laboratory, Toronto 75

11. Report of Branch Laboratory at London 107

12. Report of Branch Laboratory at Kingston 115

13. Report of Branch Laboratory at Fort William 122

14. Experimental Station, Bulletin No. 7: Recommended Methods for Physical and Chemical Examination of Sewage and Water, A. V. DeLaporte, B.A.Sc., Chemist in Charge 125

PAGE
15. APPENDIX "A"—REPORTS OF LOCAL BOARDS OF HEALTH 156

Cities:—
Belleville 156
Brantford 156
Chatham 160
Fort William 161
Galt........ 172
Guelph........ 175
Hamilton 178
Kingston 194
Kitchener 195
London 196
Niagara Falls 199
Ottawa 200
Peterborough 212
Port Arthur 215
Sarnia 219
Sault Ste. Marie 221
Stratford 222
St. Catharines 224
St. Thomas 227
Toronto 228
Welland 259
Windsor 259
Woodstock 263

Towns:—
Amherstburg 265
Bala 266
Barrie 266
Bowmanville 268
Cornwall 269
Dresden 270
Keewatin 271
North Bay 272
Orillia 276
Oshawa 278
Paisley 282
North Monaghan Twp. 282
Port Hope 283
Renfrew 286
Simcoe 287
Stayner 288
Strathroy 289
Sudbury 290
Thorold 292
Walkerton 293
Waterloo 293
York Twp. 294

ANNUAL REPORT

OF THE

Provincial Board of Health for the Province of Ontario

For the Year Ending the 31st of December, 1919

RESUME OF THE TRANSACTIONS OF THE BOARD BY THE CHIEF OFFICER OF HEALTH

This is the 38th Annual Report of the Provincial Board of Health for the year ending 31st December, 1919.

During the year there were four meetings of the Board, at which all the members were present.

Legislation.

During the 1919 Session of the Legislature the following amendments to the Public Health Act were passed, viz.:

The Statute Law Amendment Act, 1919.

(30) (1) Subsection 2 of Section 13 of the Public Health Act shall be deemed to be and have been from the 26th day of March, 1918, repealed and the provisions of Section 2 of the Public Health Act, 1918, substituted therefor.

(2) Subsection 1 shall come into force upon the day upon which the same shall receive the Royal assent.

An Act to amend the Public Health Act.

1. Section 25 of the Public Health Act is amended by adding thereto the following subsection:

> (3) A certificate from the Clerk of the municipality setting forth the cost of the said conveniences and a description of the lands upon which the same were made shall be registered in the proper registry or land titles office against the said lands on proper proof by affidavit of the signature on the said clerk and upon payment in full of the cost of the said conveniences a like certificate from the city clerk shall be registered and the lands shall thereupon be freed from all liability with reference thereto.

REGULATIONS.

The following regulations were passed by the Board during the year. The Regulations were approved by Order-in-Council and published in the *Ontario Gazette,* April 5th, viz.:

Regulation 3a.

Communicable Diseases.

Sections 53 and 55 of the Public Health Act shall apply to the following communicable diseases, viz.: Influenza, acute influenzal pneumonia, acute primary pneumonia, trench fever, typhus fever, relapsing fever and dysentery (both bacillary and amoebic).

Free Distribution of Biological Products.

During the year (November, 1918-October, 1919) the Board supplied free to the public, $46,393.05 worth of the following biological products, viz., smallpox vaccine, diphtheria antitoxin, tetanus antitoxin, antimeningitis serum, Pasteur preventive treatment for rabies and material for Schick test. These were purchased from the Connaught Antitoxin Laboratories. In addition, the Board supplied, also free, large quantities of influenza vaccine, anti-typhoid (T.A.B.) vaccine, pertussis vaccine and preventive treatment for babies' sore eyes, and later in the year a combined vaccine for the prevention of the complications of influenza. A detailed statement of this service is published herein.

Influenza.

In the autumn of 1918 and the early months of 1919 we were visited by a very severe epidemic of influenza. The outbreak spread from east to west across the Province and caused great loss of life. The deaths from influenza and pneumonia for the last three months of 1918 and for 1919 are given for comparison:

1918.		1919.	
October	3,015	January	1,514
November	2,608	February	812
December	1,568	March	703
		April	478
		May	355
		June	165
		July	57
		August	58
		September	89
		October	139
		November	174
		December	188

In some quarters the influenza vaccine supplied appeared to afford satisfactory protection, in others it was deemed of no value. This seems to have been the general experience elsewhere and the Board has concluded that the evidence as to the value of influenza vaccine is not sufficient to warrant continuance of its production. There is fairly good evidence, however, that a combined vaccine of influenza, streptococcus, staphylococcus, and pneumococcus is of value in preventing the complications of influenza, consequently the Board is now producing and distributing this type of vaccine as a prophylactic against these complications.

VENEREAL DISEASES.

Since the adoption of the Venereal Diseases Prevention Act and the approval of Regulations made thereunder the Board has given a great deal of consideration to the problem of satisfactorily dealing with these affections. As the result of representations made by a conference of health officers of Canada, of the local advisory in Military District No. 2 and of social workers the Dominion Government was this year induced to make a grant of $200,000 to the Provinces of Canada to be divided in proportion to population for the purpose of combating venereal diseases, on condition that the Provinces contributed at least an equal amount. The share of Ontario under this arrangement amounts to $57,473.68 and late in the year the new Government gave assurance to the Board that a vote of $115,000 would be appropriated for this purpose. With this in view the Board began to develop a Venereal Disease Division at the head of which Dr. Robert Roy McClenahan was appointed. The organization is already under way and it is hoped that the next report will be able to announce substantial progress. Already an addition to our Stanley Park Laboratory is under construction for the purpose of carrying on the manufacture of an arsphenamine product, a license for which has been promised the Board.

SMALLPOX.

In addition to influenza, the Province has had quite a severe outbreak of smallpox, and while many of the cases were severe enough the death rate has fortunately been small. The City of Toronto was the chief and earliest centre and is largely blamed by outside municipalities for neglect to fulfil the law, thereby allowing the disease to spread.

DIPHTHERIA.

Was very prevalent during the year. There are altogether too many deaths from this affection considering that antitoxin is free to the public. The chief reason for the death-rate (about 8 per cent. of cases) lies in the fact that the people of our country fail to recognize cases in the early stage when if antitoxin were freely used the death rate would be negligible. Many physicians still fail to use large enough doses and in advanced cases and in laryngeal cases omit to use the remedy intravenously. The public and many of the doctors need more education in the salutary use of diphtheria antitoxin.

THE CHILD WELFARE DIVISION.

During the year the Child Welfare Branch conducted very successful clinics in many places. The exhibit and clinic held in connection with the Canadian National Exhibition Public Health Exhibit was one of the best the Board has had and received very many expressions of appreciation. A full description of the work of the Division is given elsewhere.

THE ENGINEERING DIVISION.

The work of the Engineering Division which has been disorganized a good deal because of the absence of the Provincial Engineer and Chemist overseas is again actively at work and during the autumn conducted an extensive sanitary survey in the Welland District, an account of which as well as of the general work of the Division is included elsewhere in this volume.

THE DISTRICT OFFICERS OF HEALTH.

In the autumn, Dr. R. E. Wodehouse of District No. 7 returned from overseas and resumed his duties. District No. 1 was filled by the appointment of Dr. Frederick Guest, of St. Thomas, who has recently returned from military service. Elsewhere in this volume will be found a full account of the work of the various district officers whose services under difficult conditions are much appreciated by the Board and by the public.

Late in the year, Mr. James Taylor, of Sudbury, was appointed to be an additional Sanitary Inspector for New Ontario, and with Mr. Alexander White, will exercise supervision over the lumber, mining and construction camps of that immense territory. The needs of this territory earnestly demand further help of this character.

ESSEX BORDER MUNICIPALITIES.

> "As the result of joint effort on the part of the local boards of health of Windsor and Walkerville, and representations made to the Provincial Legislature by leading citizens of the Boarder Municipalities, the Essex Border Utilities Commission, a joint body representing seven municipalities situated along the Detroit River, viz.: Sandwich East, Ford City, Walkerville, Windsor, Sandwich, Ojibway, and Sandwich West, was vested on July 1st, 1919, with the powers of a local board of health. By such action, four local boards of health controlling health matters in Ford City, Walkerville, Windsor and Sandwich were merged into the one organization, and the Essex Border District of 49,872 inhabitants, and an area of 19 square miles came under the one head for public health purposes."

Following the passing of an Act by the Legislature confirming this arrangement, a full-time Health Officer was appointed for the seven municipalities. Elsewhere in this volume will be found the provisions of the Act and an account of the organization of the new board, etc.

THE LABORATORIES.

An additional Public Health Laboratory was established during the year at Fort William, under the directorship of Dr. N. O. Thomas. The city very generously provided and fitted up quarters for the Laboratory in the Municipal Building, and in addition made a grant of $500. This Laboratory has been very well equipped and will certainly prove to be of good service to the western portion of Ontario.

The other Branch Laboratories at London and Kingston continue to give satisfactory service. The main Laboratory at Toronto was unfortunate in losing the services of its Director, Dr. John A. Amyot, C.M.G., who in July of this year assumed the important position of Deputy-Minister in the lately constituted Department of Public Health at Ottawa. In his place was appointed H. M. Lancaster, B.A.Sc., former Chief Chemist, who during the period of the war had successfully performed the duties of the position. The work of this Laboratory has increased enormously of late years and the quarters are wholly inadequate for the Board's purposes.

In prospect of carrying on the preparation of an arsphenamine product the Board has under construction an addition to the Experimental Plant Laboratory where much of this work will be carried on.

It is of interest at this juncture to consider the position of Public Health in Ontario as compared with that previous to the war. Notwithstanding the difficulties experienced by the absence of a large number of the Board's staff in the war, the excessive and increasing cost of all materials and the lack of funds because of the necessary economy very properly desired by the Government, it is gratifying to note that the protection of the public health has not suffered, but on the other hand, a distinct advance has been made. This is apparent in the provision for the free distribution of biological products, the increase of public health laboratories, and the notable advance initiated in respect to the legislation for the prevention of venereal diseases. Large amounts have been spent in furthering the care of the tuberculous, a Commission has been engaged in the investigation of the feeble-minded problem and an active national society is engaged in furthering mental hygiene.

THE MINISTRY OF LABOUR AND HEALTH.

Following the establishment of the new Government in October of this year, the Provincial Board of Health was transferred from the Department of the Provincial Secretary to that of the Minister of Labour and Health, with the Honourable Walter R. Rollo, M.P.P., in charge. The Board desires to offer its congratulations to the new Chief and to assure him of the same service and fidelity to the public interests which has heretofore been the aim of the Board.

NEEDED MEASURES.

Two subjects impress themselves upon the Board as in urgent need of early and thorough attention; these are, *first,* the necessity of substantial aid to the Maternal and Child Welfare Branch for the purpose of conserving the infant life of the Province, than which in the Board's opinion, no subject is of greater importance to a new country, and, *second,* the need of greater attention to matters of Public Health Education. These are two subjects upon which it is the intention of the Board to concentrate its energies with the New Year and it is earnestly hoped that by our next report we shall be able to say that our efforts have had a measure of success.

To the public and particularly the medical profession who have assisted the Board by their appreciation of our efforts heretofore we are extremely grateful and hope to merit a continuance of their future support.

Signed on behalf of the Board.

JOHN W. S. MCCULLOUGH,
Chief Officer.

REPORT ON VENEREAL DISEASES FROM OCTOBER TO DECEMBER 31st, 1919.

TORONTO, March 10th, 1920.

SIR,—I have the honour to make the following report:

In October, 1919, I was appointed for temporary duty to the Provincial Board of Health to begin the treatment of prisoners suffering from venereal diseases. Wassermanns were taken on all the prisoners at Burwash Industrial Farm, some 500 in all. Some 30 of these men were found to be suffering from syphilis. Treatment was at once begun on these, diarsenol, neodiarsenol with mercury and iodides being given with the assistance of the local Medical Officer, Dr. A. J. Butler. All cases were examined for gonorrhoea and efficient treatment instituted. Some 15 of the prisoners were found to be suffering from gonorrhoea.

The Mercer Reformatory was similarly treated. There some 75 Wassermanns were taken and about 25 women were found to have syphilis. Treatment along the same lines as for the men at Burwash was begun and carried on. The women had all been examined for gonorrhoea previously and treatment was being given. Some 60 per cent. of the inmates were found to be suffering from gonorrhoea.

In both institutions patients were kept over their time to finish their treatment, especially if they were considered a menace to the public if set free. Definite rules for release in both diseases were laid down and strictly adhered to. The patients have been well pleased with their treatment and the results in general have been very gratifying.

It is hoped that within six months a comprehensive method of attack on syphilis and gonorrhoea by means of education of the public and by treatment in free clinics will be under way throughout Ontario.

I have the honour to be, Sir,

Your obedient servant,

R. R. McCLENAHAN, B.A., M.B.,
Asst. to Chief Officer of Health.

Dr. J. W. S. McCullough,
Chief Officer of Health,
Parliament Buildings,
Toronto, Ont.

CASES AND DEATHS FROM COMMUNICABLE DISEASES

Reported Weekly by Local Boards of Health for year 1919

Months.	Smallpox.		Scarlet Fever.		Diphtheria.		Measles.		Whooping Cough.		Typhoid.		Tuberculosis of Lungs.		Infantile Paralysis.		Cerebro-spinal Meningitis.		Syphilis	Gonorrhoea	Chancroid	Influenza and pneumonia.	Total Deaths.
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Cases	Cases	Deaths	
January	40	....	206	4	294	26	5	....	56	6	11	2	186	156	....	....	4	4	125	138	1	1,514	......
February	41	....	337	11	329	34	21	1	41	2	12	3	226	144	....	....	14	13	85	153	5	812	......
March	39	1	445	10	413	49	39	....	69	4	13	3	242	196	....	....	18	12	97	183	4	703	......
April	32	....	330	7	204	30	53	2	48	3	10	3	191	152	....	....	12	12	110	139	3	478	......
May	98	2	391	7	264	27	34	....	46	8	18	6	233	188	....	....	12	11	98	129	5	355	......
June	68	2	310	6	273	27	104	....	63	2	22	7	228	183	7	5	4	4	108	154	10	165	......
July	51	1	154	3	186	19	83	....	80	8	34	8	210	147	7	....	11	10	83	139	7	60	......
August	30	....	120	2	190	28	64	....	112	14	69	16	196	109	3	....	8	8	104	169	5	58	......
September	48	1	187	4	291	39	51	1	141	9	101	31	105	93	9	....	6	5	115	151	7	89	......
October	38	....	277	2	452	50	96	1	166	6	98	21	169	135	14	1	5	3	79	121	3	139	......
November	1,128	....	438	7	621	50	412	2	127	7	53	24	159	124	2	....	11	8	100	171	4	174	......
December	1,433	2	554	17	744	65	1,026	14	214	9	51	21	111	95	7	2	26	9	109	110	5	188	......
Total	3,046	9	3,749	80	4,261	444	1,988	21	1,163	78	492	145	2,234	*1,722	49	8	131	99	1,213	1,757	59	4,735	7,327

* Weekly reports of deaths from Tuberculosis give only 83%.

STATEMENT OF BIOLOGICAL PRODUCTS

Distributed Free of Charge by the Provincial Board of Health, Ontario

November 1st, 1918, to October 31st, 1919

Month	Smallpox Vaccine points	Diphtheria Antitoxin units	Diphtheria Antitoxin syringes	A.-M. Serum x 20cc.	Intra Spinal outfits	Toxin anti-toxin boxes	Schick test outfits	Tetanus Antitoxin units	Tetanus Antitoxin syringes	Tetanus antitoxin outfits	Pasteur Prev. treatment	Typhoid Vaccine		Pertussis vaccine			Silver Nitrate Solution
												Civic cc	Mili-tary cc	Boxes	10 cc	25 cc	
November...........	875	23,331 M	1,168	83	14	......	......	126,000	2	......	1	695	11,000	28	46	18	58
December...........	4,500	11,857	1,217	91	8	......	4	256,500	56	......	1	185	......	62	24	5	113
January	2,070	27,914	1,543	106	10	......	......	156,000	54	......	8	286	......	72	6	1	128
February	7,925	26,799	1,364	41	2	......	......	70,500	2	......	2	290	......	110	22	10	130
March	13,480	25,946	1,042	134	11	......	......	40,500	9	......	1	......	......	203	64	......	241
April	3,935	21,957	1,160	171	10	......	......	475,500	63	......	......	1,685	11,000	203	64	......	241
May	9,110	15,693	954	109	18	......	......	336,000	5	......	......	395	16,750	140	24	40	161
June...............	6,315	9,842	737	32	10	......	...	304,000	25	......	......	1,153	3,750	126	66	......	45
July...............	3,710	11,710	633	24	6	......	2	465,500	67	......	8	......	573	14	92	......	101
August	5,040	12,798	326	110	14	6	......	352 500	16	......	1	......	881	92	114	57	115
September	6,325	31,552	1,708	129	16	......	24	522,000	84	2	......	......	......	269	75	19	118
October............	7,995	33,323	1,967	131	4	......	3	924,500	66	2	1	......	997	182	86	12	306
	71,280	252,721 M	13,819	1,161	123	6	33	4,029,500	449	4	23	4,689	44,951	1,501	683	162	1,757

SUPPLEMENTARY STATEMENT

	COST												REVENUE
Month	Smallpox Vaccine	Diphtheria antitoxin units	Diphtheria antitoxin syringes	A.M. serum 20 cc.	A. M. outfits	Tetanus antitoxin	Tetanus antitoxin syringes	Tetanus outfits	Pasteur Treat-ments	Antitoxin	Schick tests	Total Cost	Revenue
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
November	35 00	3,499 65	233 60	83 00	6 30	37 80	40	....	15 00	......	....	3,910 75	240 30
December	180 00	1,778 55	243 40	91 00	3 60	76 95	11 20	....	15 00	......	60	2,400 30	258 80
January	82 80	4,187 10	308 60	106 00	4 50	46 80	10 80	....	120 00	......	....	4,866 60	323 90
February	317 00	4,019 85	272 80	41 00	90	21 15	40	....	30 00	......	....	4,703 10	274 10
March	539 20	3,891 90	208 40	134 00	4 95	12 15	1 80	....	15 00	......	....	4,807 40	215 15
April	157 40	3,293 55	232 00	171 00	4 50	142 65	12 60	....	....	......	....	4,013 70	249 10
May	364 40	2,353 95	190 80	109 00	8 10	100 80	1 00	....	....	......	....	3,128 05	199 90
June	252 60	1,476 30	147 40	32 00	4 50	91 20	5 00	....	....	......	....	2,009 00	156 90
July	148 40	1,756 50	126 60	24 00	2 70	139 65	13 40	....	120 00	......	30	2,331 55	142 70
August	201 60	1,919 70	65 20	110 00	6 30	105 75	3 20	....	15 00	2 50	....	2,429 25	74 70
September	253 00	4,732 80	341 60	129 00	7 20	156 60	16 80	90	....	......	3 60	5,641 50	366 50
October	319 80	4,998 45	393 40	131 00	1 80	277 35	13 20	90	15 00	50	45	6,151 85	409 30
	2,851 20	37,908 30	2,763 80	1,161 00	55 35	1,208 85	89 80	1 80	345 00	3 00	4 95	46,393 05	2,911 35

THE DISTRICT OFFICERS OF HEALTH PROVINCE OF ONTARIO

DISTRICT No. 1.

Comprising the Counties of Lambton, Essex, Kent, Elgin, Oxford and Middlesex.

DISTRICT No. 2.

Comprising the Counties of Grey, Bruce, Huron, Perth, Waterloo, Wellington and Dufferin.

T. J. McNally, M.D.

District Officer of Health, London, Ont.

I have the honour to submit the following report of the work done in the above Districts during the year, 1919, to the Ontario Provincial Board of Health.

Continuing the procedure of the past since being in charge of two Districts I have promptly attended and given assistance in all cases when requested by the Local Board or M. O. H., and in addition have made about fifty official visits to Rural and Urban Municipalities where I met the local authorities and reviewed the work carried on by them during the year or since last visit advising them where their efforts might be extended or improved upon.

From these official visits I have been forced to the conclusion that the organization built up previous to the war has, through the stress of war work and, perhaps, through the partial lack of supervision, become somewhat broken so that now the war is over and re-organization on the way, I trust it may not be long until our old organization is not only re-established but improved upon.

In endeavouring to strike a balance at the end of the year so as to arrive at some fair conclusion as to the efficiency of the present re-organized Public Health Service in Ontario compared with former conditions, I have compared the death rate from certain of the Communicable Diseases as compiled from the Registrar General's returns and quoted in the 1918 Annual Report of the Provincial Board of Health, viz.—Smallpox, Scarlet Fever, Diphtheria, Measles, Whooping Cough, Typhoid Fever and Tuberculosis (of the lungs).

I have used to represent the old system the last four years of the regime 1908, 1909, 1910 and 1911, and to represent the present system the years 1915, 1916, 1917 and 1918, being the last available figures and I might say incidentally that owing to war conditions the present system is getting the worst of the comparison. The comparisons are for the whole Province as I was unable to get the figures by Districts in the time at my disposal.

The deaths in the first group are 14,850 and in the second group 13,005, or an average yearly mortality in the first group, 3,713 and in the second group of

3,251, leaving an average annual lessened mortality of 462 in favour of the present system to which must in fairness be added the death incidence that would have accrued under the old organization in the average annual larger population of 450,672, for the second group being 726 deaths, which added to the 462 means that under the present system 1,188 lives have been saved to the Province in each of the four years of the second group.

Taking this annual saving of lives at the low average of two thousand dollars for each life the Public Health Department may claim on this score alone to have saved the Province two million three hundred and seventy-six thousand dollars annually on the increased expenditure of the present over the old system.

If any one is still in doubt as to the returns derived by the Province from Public Health Expenditures, let him compute the savings derived from the free distribution of antitoxines and vaccines with what the public would have expended for these at the prices charged by commercial houses previous to the Public Health Department entering upon their free distribution.

If there still remains a skeptic let him total up the immense saving to municipalities from the work of the Engineer's Section of the Public Health Department; then for good measure let the savings from the Experimental Station be added and to this let conviction be pressed home with the annual savings derived from the lives saved through the Child Welfare Work as at present carried on.

I do not for a moment desire you to conclude that I am satisfied we have reached the goal of our ambitions or that there are not any defects in our present system—there are many and to those of us in the work they loom up so large that I have struck the balance to re-assure myself, as well as you and through you the Minister under whom we serve that our efforts have not been in vain nor the fund invested in enlarging the Public Health Department squandered.

During the year I have been called upon to inspect, report upon and advise regarding the abatement of the following insanitary conditions.

Krupnitzky's Junk Yard, Chatham.—Recommended that a permit be not granted to conduct the business on the site chosen for sanitary reasons.

Canning Factory, Cottam.—Recommended that they be given a few days to abate the decided nuisance they were causing and if they failed to comply with the order that the Local Board prosecute.

Also that next year they be restrained from overcrowding their help in the houses provided.

Borden Milk Company, Norwich.—Recommended that they abate the nuisance caused by emptying their effluent into the creek before June 1st.

Cedar Creek Contamination, Woodstock.—Recommended that the overflow from the city sewers be cut off and that the supervision of the sewers and treatment plants be placed under the City Engineer, Mr. Ure, which was done.

City Dairy, Embro.—Recommended that the pollution of the stream by the effluent from the dairy be stopped.

Fertilizer Plant, Norwich Junction.—Owner warned that in future the plant must be operated so as not to cause a nuisance or his permit would be cancelled.

Insanitary Drain, Drumbo.—Amicably arranged that the nuisance be abated.

Otter River Contamination, Tillsonburg.—Borden Milk Company notified that they must abate the nuisance caused from emptying their effluent into the river.

Rectory Street Dump, London.—On our recommendation the nuisance was abated.

Helwig Pond Contamination, Neustadt.—Contamination by the Crystal Spring Creamery Company; no cause for complaint when I examined conditions.

Tara Piggery.—The nuisance from this was very objectionable and was stopped some years ago, when action was taken in the courts, but the business has passed into other hands and is again in operation. The local Board of Health was instructed to take action to abate the nuisance, but I fear it will again be in operation next season, and I do not believe it is possible to operate it in the location without being a nuisance.

Toilet and Ventilation, Walkerton Court House.—On complaint of His Honour Judge Klien, these conditions were investigated and reported upon to the Provincial Board.

Fertilizer Plant, Wingham.—The owners were notified that the nuisance from the operation of this plant must be abated and the fouling of the stream by their effluent discontinued.

Woollen Mills, Mitchell.—The nuisance and contamination of the river caused by the effluent from these mills has not been abated or any attempt made to carry out the recommendations of the Provincial Engineer.

I recommended the M.O.H. to have the condition corrected at once by the owners, or, failing in this, to institute legal proceedings to have it corrected, as ample time has already been given for abatement.

Dump, Sarnia.—The city has an incinerator in operation, so that there is not now any reason why any objectionable matter should be deposited on the grounds.

MEAT AND MILK SUPPLIES.

There is a marked improvement in the sanitary care of these foods and most of the municipalities are now supervising their distribution under bylaws, but there is yet room for further improvement in some localities.

RURAL SCHOOLS.

Though many of these are improved under the annual inspection of the local medical health officers, few, indeed, are ideal, so that concentrated effort is yet required before we can point to the school and its surroundings as an object lesson to the section in sanitation.

COMMUNICABLE DISEASES.

Smallpox.—The incidence of this disease has been rather widespread, having occurred in many municipalities under my supervision, but has not in any case attained the proportions of an epidemic.

The cases are mostly mild and frequently atypical, though occasionally of moderate or severe type, resulting fatally. A number of our initial cases apparently had their origin in Toronto, but the source of contact in others was difficult or impossible to locate.

The mildness of the type made the matter of control most difficult, though the local authorities in every case were active in their endeavors to stamp out the disease and had the hearty co-operation of the public.

Scarlet Fever.—This disease has occurred at many points in mild form; so mild, in fact, that frequently it was first recognized by the exfoliation of the epidermis so that its control has been very difficult, indeed—even by the most vigilant medical officer.

Tuberculosis.—The fatalities from the pulmonary form of this disease are about two and one-half times as many as from all other communicable diseases, if we except influenza and its complications; yet the public take this high death rate almost as a matter of course, when we consider the alarm over and concentrated effort put forth to care for the recent epidemic of influenza. The fact that this insidious enemy has swept away one-half as many people during the past year as influenza and its complications has not caused a ripple of excitement.

The reporting of both tuberculosis and influenza morbidity is anything but satisfactory, and, in fact, the same negligence is very manifest in most of our communicable diseases, and demands some intensive study which will formulate such regulations as will, when adopted, correct this unfortunate defect in our system.

Diphtheria.—The number of deaths from this disease is entirely too large when we take into consideration the fact that anti-toxin is provided by the Provincial Board free, and that if a proper dose is given the first day of the disease the death rate is less than one per cent. of those so treated. I have endeavored to find an explanation for this unnecessarily high death rate from investigating the deaths in my district as far as the time would permit. The principal causes were:

Because the cases do not come under the care of the physicians soon enough.

Because the patients or their guardians refuse anti-toxin treatment until the diagnosis of the attending physician is confirmed by bacteriological examinations of a swab, and occasionally this position is also taken by the physician in charge.

Because some physicians fail to use a *proper* dose *at once.*

Because of the unfounded fear on the part of the public (and, unfortunately, some physicians) that the treatment has an injurious effect on the heart, and so absolutely refuse its use.

Because too frequently, especially in cases seen late, systematic treatment has been practically abandoned.

The remedy appears to be in the education of the public and a few practitioners as to the safety and efficiency of early proper dosage of all suspicious cases.

Measles.—The number of cases and deaths from this disease have been comparatively few during the year.

Mumps and Whooping-cough.—Isolation of these diseases is being more carefully carried out than formerly, with good results, and very favorable reports on the efficiency of the vaccine supplied by the Department have been received.

Influenza and Pneumonia.—These diseases have been epidemic throughout the districts, and, in fact, the Province generally, claiming 4,735 victims during the year, proving the most fatal epidemic in the history of the Province.

Much valuable work has been done by the department in arranging for extra medical attendance and the supplying of nurses.

DISTRICT No. 3.

Comprising the following Counties: Brant, Haldimand, Halton, Lincoln, Norfolk, Peel, Welland Wentworth, and York.

D. A. McClenahan,
District Officer of Health.

In January of 1919 I undertook the work of visiting all the municipalities in the County of York. This is a very large county, comprising twenty-three municipalities. There are ten townships and thirteen villages or town municipalities. The meetings of the Township Councils and Board of Health are held generally as nearly as possible at the centre of the township. These central points are often difficult of access by steam railway or trolley and one is often forced to depend for means of transportation, upon the good nature of the M.O.H. of the municipality, as vehicles quite often cannot be hired as no liveries are within reasonable distances, and if they were the expense would be considerable. An automobile for the District Officer is almost a necessity if satisfactory work is to be done. If I had a motor car I could visit every municipality in my District during the summer, whereas, with the present means of transportation I could not do it in two years. It would certainly promote efficiency and be a great time saver. The municipalities visited were the Township of York, Scarboro, Markham, Whitechurch, North and South Gwillimbury, Georgina, King, Vaughan and Etobicoke; and the other municipalities visited were Weston, Sutton, Holland Landing, Newmarket, Aurora, Woodbridge, Stouffville, Richmond Hill, Leaside, Mimico, New Toronto.

When meeting the Township Councils I pointed out to them the work that was being done by the Provincial Board of Health in the way of assisting in the prompt diagnosis of disease by the free examination of samples of water, milk or other foods, as well as the examination of samples of blood, and also swabs from suspected cases of diphtheria or streptococcic infections of the throat. In cases of diphtheria I pointed out that where the finding was a positive one, a notice was at once sent to the Physician by wire. In addition I reminded them that Antitoxine for the treatment of diphtheria was manufactured by the Board and sent to all Boards of Health in the Province free of charge. These measures have resulted in a very material reduction in the mortality of this at one time very fatal disease.

I also reminded them that it was their duty to assist the Local M.O.H. in any measure that had for its object the promotion of the public health. I pointed out to them how important it was that every one should have pure water to drink and in that connection tried to impress upon them that wells on the farms, where the water was used for human consumption, should be protected at the top, so as to exclude surface water; that surface water was always polluted water and that if this water were allowed to trickle into the well, that such a well was necessarily polluted. I reminded them also of the importance of using clean milk, particularly for young children, and told them that they were fortunate in being able to obtain milk that was fresh and not subjected to a long haul in hot weather as it is in the cities, but this advantage did not obviate the necessity of obtaining milk in as cleanly a manner as possible.

I also reminded them of the duty of their Medical Officers of Health and Sanitary Inspectors in seeing that slaughter houses were constructed according to the regulations of the Provincial Board of Health, so that the meat presented for sale might be procured in as cleanly a manner as possible.

When meeting the Councils and Boards of Health of the village, town and city municipalities I recommended to them the procuring of a pure water supply and also a safe milk supply. I recommended that whenever possible milk should be required to be pasteurized before being sold. I reminded that in practically every herd of cattle there are some tuberculous animals, and that very likely in all mixed milk exposed for sale there are likely to be tubercular bacilli. Pasteurization destroys these as well as other harmful bacteria and hence the only safe milk in cities, towns and villages is pasteurized milk. In this connection I might mention that the City of Brantford has a by-law forbidding the sale of any but pasteurized milk. I would like to see every city in my district do the same thing.

I have also tried to impress upon the villages and towns without sewers the importance of the sanitary disposal of sewage. Outdoor closets may be utilized but should be dry-earth closets and screened against flies and also that the municipality should collect the night soil at frequent intervals.

Fly infection is not a myth but is a very real danger in the summer months. I tried to impress on Boards of Health that if they would see that a proper water supply and a safe milk supply were provided for the citizens and, in addition, that the regulations regarding manure pits were enforced, thus preventing the breeding of flies, and also the screening of outdoor closets, a long step would be taken to protect the people from infectious disease. Some municipalities are very slow in enforcing the regulations regarding manure pits and some education is required yet before we shall get them established in all places where they should be.

I visited Brantford during February and addressed a public meeting on public health topics. I recommended then the appointment of a full-time M.O.H., and also that all milk should be pasteurized. I am glad to say that both recommendations have been carried out.

I also visited some of the municipalities of Peel County and attended meetings at Streetsville and Brampton.

During the month of June I visited all the Women's Institutes in my District that I was able to attend. Some of the meetings were held on the same day in different counties and then I was unable to attend more than one. In my talk to the Women's Institute I pointed out that I was seeking their co-operation in Public Health Work. I urged upon them the importance of this work and suggested to them that I thought it would be a good thing if they would sacrifice enough time to become members of Municipal Councils and also Boards of Health, and take an interest in the work and help the Public Health Officials in every way that they could. I reminded them of the good work that had already been done along this line by their organization, notably, in the establishment of Medical Inspection of school children. This work has been carried on by the Women's Institutes in the Counties of Lincoln, Wentworth and Peel. A great impetus has been given to the work of Medical Inspection of school children by the undertaking of the Department of Education to oversee this field of endeavour. Dr. Smith, from that Department, has done a great service in the work that she has been carrying on. I tried to show to the members of the Women's Institute how they could co-operate with Boards of Health and Health Officials by supporting all measures brought up for the betterment of the people from the public health view point. I pointed out to them the importance of pure drinking water, clean milk, fresh air, proper disposal of sewage, proper living and housing conditions.

The Societies visited held their meetings at Humberstone, Milton, Islington, Brampton, Forestville, Toronto.

During the year 1919 I also visited Teachers' Institute Meetings at Hamilton and Acton. During July I was asked by the Board of Education and M.O.H. of St. George to advise about the disposal of sewage at their school house. They are contemplating the building of a new school in a few years. Up to the present they had been using outdoor closets but were anxious to have some better system. It did not seem to me to be possible to establish a satisfactory septic tank on account of the conformation of the ground. After conferring with the Board of Education and the M.O.H. I recommended the establishment of Kaustine closets until such time as the new school house is built. This has been done since, I believe.

I also visited during the summer Port Dover and found that the hotel which is there, used by tourists, was not satisfactory from a sanitary point of view. There is no satisfactory disposal of sewage. Only outdoor closets are used and these were not clean and no attempt made to exclude flies. I warned the proprietor that such conditions would not be tolerated another season, but as it was then near the end of the season the place would not be closed, but that he must make arrangements for proper disposal of the sewage before another year. I do not know yet whether he has heeded the warning.

I purpose during 1920 visiting all the summer resorts in my District and after careful examination and reasonable time being given for improvement, according to recommendation made, I purpose listing those that are up to standard and also listing those that are below the standard and reporting to the Provincial Board. Then, if it is deemed wise, the list may be published so that the public may know where to go to be reasonably safe from infection. A large number of other municipalities were visited during the year.

We had during the year 1919, beginning about July, outbreaks of small pox at different centres in the District. In nearly every instance the first cases were traceable to Toronto. We had cases of small pox coming from houses in Toronto where they had so-called chicken pox. So convinced was I that a mistake was being made in the diagnosis in Toronto that I wrote to Dr. McCullough, the Chief Officer of Health, that in my opinion they were having cases of small pox in Toronto and calling it chicken pox. This unhappily proved to be true and it was not until about 150 cases of chicken pox had been reported in Toronto in October that the Health Officials awoke to the fact that they had an epidemic of small pox on their hands. We have had a large number of cases in the District particularly adjacent to Toronto. The epidemic is now subsiding. We had outbreaks at Stouffville, Weston, Richmond Hill, Mimico, New Toronto, Aurora, Newmarket, Oakville, St. Catharines, Hamilton, and Brantford. I have been called to a large number of these municipalities to confirm diagnosis of small pox.

During November, in the absence of Dr. Clinton, I was called to see some cases of rash in the Institute at Orillia. They proved to be small pox. I was received cordially and treated most courteously by the Superintendent, Mr. Downey, and also by the medical men in charge. There were about thirty-five cases in all. The rest of the inmates were promptly vaccinated, under the supervision of Dr. Herriman, and the Institution was isolated for a short time and the epidemic came to an end.

The work of the year has more than ever convinced me that we must still continue the education of the public along public health lines. If, for instance, people had been better educated regarding the virtue of vaccination we would not have had so much opposition from the minority regarding this very important operation.

DISTRICT NO. 4.

Comprising the Counties of Prince Edward, Hastings, Northumberland and Durham, Peterborough, and Haliburton, Ontario, Victoria, Simcoe and Muskoka.

GEO. CLINTON, M.D.
District Officer of Health.

I have the honour to submit for your consideration a summary of my work for the year 1919.

All public institutions and manufacturing plants have been reported in detail to the Chief Officer of Health. I find a gradual improvement, yet much more should be done, especially in rural districts.

I am pleased to note that in several places the Councils do appreciate the work of Medical Officers and have given a moderate increase in salaries.

I find a great need for competent Sanitary Inspectors, there being only five or six whole time Sanitary Inspectors in my whole territory.

Had we control of Medical Inspection of all Public Schools as well as the sanitary conditions, together with a District Nurse to follow up where necessary, much more could be done in preventing disease for the rising generation. The majority of rural schools are very unsanitary. If the Government grant could be withheld until changes advised were made we could make more rapid progress.

No epidemic occurred until the autumn when smallpox appeared in different places of a mild type, but I saw several severe cases. No deaths.

I visited the following places to aid the local Medical Officer in making or confirming diagnosis and quarantine: Orillia, Oshawa, Whitby Township, Bowmanville, Campbellford, Havelock, Trenton, Belleville, Bloomfield, Picton, Wellington.

All of the above visits were made by request of the Chief Officer of Health or the local Medical Officer.

Being of a mild type many cases were not reported hence the difficulty of keeping it under control. The only alternative was advising general vaccination in the schools, followed by adults willing to protect themselves.

Very little of the foreign element in my territory except in manufacturing cities and towns.

During the year I have had many meetings with the local Boards of Health, Councils, Women's Institutes and other Orders, pointing out to the best of my ability the need of greater attention to sanitation in schools, homes, farms, etc., the advantage and value of fresh air and sun light.

Much advance has been made in the supply of good water, and clean milk, which I consider two of the most important factors conducive to health.

Nearly all our water supplies are more or less polluted and the only safety is filtration and chlorination.

SLAUGHTER HOUSES.

I am glad to be able to say that from the time I first visited them, each year has shown a steady improvement in their condition—only four or five condemned this year.

HOSPITALS.

Picton.—One, now being enlarged.
Belleville.—One.
Peterborough.—Three (one isolation).
Cobourg.—One.
Port Hope.—One.
Lindsay.—Two (one isolation).
Oshawa.—One.
Barrie.—One.
Midland.—One.
Penetanguishene.—One.
Collingwood.—Two (one isolation).
Gravenhurst.—Three.

All hospitals receiving Government grants should be required to make provision for all communicable diseases so that nurses in training should be able to get full instruction and not have to take an extra or post-graduate course to make them proficient for all duties.

HOUSES OF REFUGE.

Picton.—Prince Edward County.
Belleville.—One for Hastings County, one for city.
Lakefield.—One for Peterborough County.
Peterborough.—Two.
Cobourg.—One for Northumberland and Durham.
Whitby.—One for Ontario County.
Lindsay.—One for Victoria County.
Beeton.—One for Simcoe County.

GAOLS.

Picton, Belleville, Peterborough, Lindsay, Cobourg, Port Hope, Barrie, Bracebridge. All old buildings poorly ventilated except at Cobourg, which is a model for sanitary convenience and ventilation.

ASYLUMS.

Whitby, Cobourg (military), Orillia, Penetanguishene.

CHILDREN'S SHELTERS.

Picton (True Blue Orphanage), Belleville, Peterborough, Barrie, Lindsay.

These places are doing a noble work in caring for unfortunate children and placing them in good homes for adoption.

By special request the following places have been visited for local troubles to assist the local medical officer and local boards.

Trenton.—Four times.
Lindsay.—Twice.
Picton.—Twice.
Marmora.—Twice.
Deloro.—Once.
Wellington.—Once.

Bowmanville.—Twice.
Peterborough.—Three times.
Havelock.—Twice.
Port Hope.—Twice.
Cobourg.—Twice.
Orillia.—Twice.
Brighton.—Twice.
Colborne.—Once.
Campbellford.—Twice.
Deseronto.—Once.
Madoc.—Twice.
Tweed.—Once.
Oshawa.—Twice.

In July and August I visited all the summer resorts on Kawartha Lakes, Muskoka Lakes, Lake of Bays, Peninsular Lake, Mary Lake, Fair Lake, Georgian Bay, Sparrow Lake, Lake Shore House (Sand Banks), Prince Edward County.

All with two exceptions have followed instructions given and these have been notified that unless they make necessary sanitary improvements they would not be allowed to open for guests the coming season.

DISTRICT NO. 5.

Comprising the Counties of Lennox and Addington, Frontenac, Leeds and Grenville, Dundas, Stormont and Glengarry, Prescott and Russell, Carleton, Lanark and Renfrew, and the City of Kingston.

Lt.-Col. Paul J. Moloney, M.D., C.M.
District Officer of Health, Cornwall.

Cornwall, Ont., 1st March, 1920.

Dear Sir,—I have the honour herewith to submit my annual report for the year 1919, of my work in District No. 5. The district had a population by the last census of 326,958, and it is not probable that there has been any notable variation since.

This office has been utilized as a source of information to a much greater extent than in former years, both by letter and telephone. Communication has been had with medical officers of health, boards of health and others, almost every day by telephone and at times many times daily, and the written correspondence has now reached a volume of at least 1,500 annually.

The district has been thoroughly inspected in a routine manner during the year. All public institutions have been inspected regarding their sanitary condition, and a report sent in both to the Provincial Board and to their various governing bodies. The requests for the elimination of unsanitary conditions or for the installing of needed improvements have generally been promptly met by those in charge of the management. Calls for the investigation of special conditions arising at different points in the district have been invariably responded to, and if justified, vigorous action has been taken.

In the beginning of the year the district was still more or less infected by the Spanish Influenza, which had reached its maximum in the fall of 1918. This disease recurred in the fall of 1919, the present year, but in a much milder form, and much less widespread as far as this district is concerned at all events. We have been fairly free from the other common infectious diseases, except perhaps smallpox, concerning which a paragraph is added in this report.

No new municipal water or sewage disposal plants were installed in the district during the year 1919, but several improvements were made in those already existing. The Hawkesbury water filtration plant which was begun in the previous year, was completed in 1919, and is giving most excellent satisfaction. The Rockland plant still hangs fire. Improvements are noted at Renfrew, Pembroke, Kingston, Brockville, Perth and Smith's Falls in the water purification plants. In several towns, however, there is urgent need of improvement, of which notable examples are Napanee and Alexandria.

There are a large number of small towns, or rather large villages, in which a campaign of education has been carried on for the last few years in favour of the installation of municipally owned water and sewage plants, and since the introduction of the Hydro-Electric power into a large number of these villages, the desire for further municipal improvements has been greatly increased, and I have no doubt that in the very near future such villages as Winchester, Chesterville, Calabogie, Russell, Alfred, Cobden, Elgin, Athens, Casselman, Plantagenet, Vankleek Hill, Verona, Crysler, Yarker, Maxville and others will instal water and sewage facilities municipally owned.

Inspection of milk, meat and other products was fairly satisfactory during the year, but only in very few cases was there a regular system of inspection carried out—most municipal councils objecting to this on account of the expense involved. Slaughter house conditions have not materially improved during the year, the local health authorities seeming very loathe to enforce the regulations in this regard. However, steps have been taken in many municipalities by way of written notice regarding improvements, which if followed up, should show a marked improvement for the year 1920.

SUMMER RESORTS.

All summer resorts in this district have been carefully inspected during the season of their activities, and the conditions found, have, generally speaking, been most satisfactory. In no instance during the year has there been any need for recourse to the Courts in enforcing the regulations.

Localities visited and inspected were the Thousand Islands and other resorts on the St. Lawrence River, including Stanley Island, Hamilton's Island, Colquhoun's Island and many others—the Charlton Lakes, Rideau Lakes, Christie's Lakes, and the cottages on the upper reaches of the Ottawa River.

Where there are in the aggregate several thousand of summer residents scattered over wide areas, no doubt some delinquents are overlooked, but the education carried on in the press and otherwise seems to have had so much effect, that mostly all cottagers are very anxious that sanitary conditions in their own locality be kept beyond complaint.

Action in the case of the St. Lawrence has been stayed until the report of the International Waterways Commission has been issued, as it is likely that an international understanding between the United States and Canada will be arrived at so that there will be uniform sanitary regulations applicable to the whole river where it forms part of the international boundary.

PUBLIC INSTITUTIONS.

During the year a sanitary inspection was made and a detailed report on the same transmitted to the proper authorities of the following public institutions: the Rockwood and Eastern Asylums; the General and Hotel Dieu Hospitals of Kingston. The General and St. Vincent de Paul Hospitals of Brockville; the

General and Hotel Dieu Hospitals of Cornwall; the private hospitals in Hawkesbury; the General and Public Hospitals in Smith's Falls; the General Hospital, Renfrew; the General and Cottage Hospital of Pembroke; the Houses of Refuge at Kingston, Athens, Cornwall, Perth and L'Original. The several orphanages, orphans' homes and children's refuges at Kingston, Brockville, Cornwall, Renfrew, etc., etc., also the gaols which are located at the different county seats.

The public health besides the ordinary routine of a district officer has been promoted during the year by a series of public lectures and moving picture exhibits.

COMMUNICABLE DISEASES.

Smallpox.

The epidemic of smallpox which has been general throughout the Province during the year occurred at many points in the district, but owing to the prompt and energetic manner in which each outbreak was dealt with by the local boards of health and medical officers of health, the disease was promptly got under control, and in the majority of instances terminated with the initial case. Vaccination has been carried out very extensively, and with very little objection from the people generally. In every case the school children were all promptly vaccinated, and also a large part of the adults, who sought this protection of their own accord, and on the advice of the health authorities. Although we had comparatively few cases in Eastern Ontario during the year 1919, it has occurred in quite a number of localities, viz.: Winchester, Carleton, Denbigh, Renfrew, East Hawkesbury, Bath, Prescott, Napanee, Camden, Adolphustown, Nepean, Kingston, Ottawa, Vankleek Hill, West Hawkesbury, Westmeath, Rockland, Ernestown, Flinton, Westboro, Ross, Pembroke, Perth.

Among the more notable conditions other than routine inspections and outbreaks of communicable diseases requiring attention, were cheese factory nuisance at Finch; ice contamination at Cornwall; lack of enforcement of vaccination in Westmeath; adjustment of M.O.H.'s salary of Ross; slaughter houses in McNab township, Kingston township, Storrington township, Camden East, and also slaughter houses in many other townships; unsanitary conditions of factories, Gananoque and Cornwall; establishment of a hospital in Perth; establishment of a cemetery in Lanark; general drainage of a section of Smith's Falls, a similar condition in Lancaster village; establishment of a hospital in Alexandria; the water supply at Bourget; appointment of M.O.H. for East Hawkesbury; establishment of the Victorian Order of Nurses in Rockland; water supply of Hawkesbury; alleged unsanitary hotel at Plevena; unsanitary dwellings, Napanee; installation of Kaustine system where municipal system not available in Brockville; housing conditions at Rideau Junction on the C.N.R. municipal water and sewer service at Westboro, Nepean township. Investigation and disposal of a large number of T.B. cases in different localities, sanitarium treatment usually being secured for the patient. All of these conditions required one visit, and in many cases repeated visits were necessary before a satisfactory conclusion was reached.

LIEUT.-COL. P. J. MOLONEY, M.D., C.M.

DISTRICT NO. 6.

Comprising the Districts of Nipissing, Parry Sound, Sudbury and Temiskaming.

DISTRICT NO. 7.

Comprising the Districts of Kenora, Rainy River, Thunder Bay, Algoma, Manitoulin, and Patricia.

I have the honour to submit the Seventh Annual Report of Districts No. 6 and No. 7. Col. Robt. E. Wodehouse, M.D., Port Arthur, returned from active service in September and immediately took over his District. This report, therefore, deals with his territory up to that time only.

Travelling expenses show a marked increase during the year which can largely be attributed to increase in railway fares and higher hotel rates. The total of travelling expenses submitted during the year amounted to $1,253.97, of which $418.75 was incurred in District No. 7. The total distance travelled was 26,185 miles. This enormous distance is not well appreciated by the Department or by my colleagues in the southern part of the Province. The days and weeks away from home are some of the personal objections; while the great loss of time on the train is a necessary evil which the Department will have to put up with until it is possible to supply more District Officers and thus restrict the distances.

The appointment of an additional Sanitary Inspector in the person of Mr. James Taylor, formerly Sanitary Inspector of Sudbury, will render the protection of those employed in unorganized territory, much more efficient. The effectiveness of the work done by this official in the short time he has been on duty has done credit to the Department and has set a high standard of competency which will be difficult to maintain in future additions to the staff.

Unorganized Territory.

Regarding the unorganized territory I may say that your officials have experienced some difficulty in providing the necessary protection in communicable diseases because the Health Act, the Vaccination Act and the Regulations for their control were not draughted with due regard to the lack of machinery in unorganized sections. Important responsibilities are placed on Councils and Medical Officers; but these do not exist. This has been particularly noticeable in large unorganized towns such as Espanola, and with smallpox in particular. For communicable disease practically no returns are made.

The number of complaints received from camps have greatly increased, showing that the men that occupy these places are becoming enlightened as to what is required. Complaints sent in by second parties such as the One Big Union has the great disadvantage of being second-hand. It would assist your officials greatly if such organizations would assume some responsibility for their statements as a number of investigations have shown a large part without foundation. This could be done by a previous examination of the points objected to by their men. Undoubtedly there are many causes for complaint in the camps of companies that we have not visited; since those of the larger concerns have been receiving considerable attention with the object of bringing into line the largest number in the shortest time. Another year will see a great improvement with the assistance of the new Inspector; but we cannot hope to see nearly all the camps even with his assistance.

My close association with the unorganized districts and the lumber and other industries which operate in them has given me an opportunity to make myself familiar with some of the abuses which are continually being perpetrated on the men. Medical contracts nearly always take some advantage of the men by deducting from their earnings each month for hospital maintenance and for the monthly sanitary inspections of camps. Both of these charges are, according to the Regulations, responsibilities of the companies. An attempt is made by physicians to explain the lack of special remuneration for these items by stating that this work is being done for nothing. Contract agreements which pay a certain sum for a certain work does not permit of such an explanation. One has no alternative, then, but to accept that the men are paying for the sanitary supervision and for the hospital maintenance. I would strongly recommend that the Department refuse to accept medical contracts, as has been the custom heretofore, unless these items are arranged and paid for by the companies.

Communicable Diseases.

The following is a list of the cases of Communicable Diseases reported during the year:—

—	District No. 6		District No. 7	
	Cases	Deaths	Cases	Deaths
Smallpox	142	0	3	0
Scarlet fever	75	2	302	5
Diphtheria	62	5	32	2
Measles	173	12	20	0
Whooping cough	95	0	7	4
Typhoid	53	4	2	1
Tuberculosis	1	3	5	9
Infantile paralysis	1	0	0	0
Cerebro-spinal meningitis	6	4	0	1
Influenza	4	3	605	28
Chicken pox	7	1	20	0
Mumps	1	1	4	1

Smallpox.—This disease was very prevalent in District No. 6 during the latter part of the year. The outbreaks were not large but they were numerous. There is no doubt but that there were many cases in the unorganized territory which were not reported. There are very inadequate facilities for reporting any form of communicable disease in the open sections of this north country without municipal organization.

Scarlet Fever.—Most of the cases in District No. 7 were reported from Fort William and Port Arthur. I investigated this outbreak during the early part of February. The epidemic has continued without interruption since April, 1917; and at the time of writing is still continuing. I found that the physicians of the place had gone on record as of the opinion that the disease was continuing because none of the houses were being systematically disinfected. The Women's Auxiliary were keenly opposed to this lack of fumigation and had stirred up considerable feeling on the matter. My investigation indicated that the disease persisted because of the mildness of the cases. I was convinced that a very large percentage are without the rash (more than 50 per cent.), many are so mild that the parents are not even apprised of the illness of the child. For this reason I opposed hospitalization since other members of the family who may be infected with the mild forms of the disease would be liberated in ten days, according to the Regulations, before they are free from the possibility of further spread of the infection. Terminal disinfection had not been carried on for many months by the medical officer of health. Dr. Oliver's position is strongly supported by Dr. Charles V. Chapin in his work "Sources and Modes of Infection." For the same reason I supported the health officer in this contention. The economic situation should not be lost sight of. The destruction of valuable chemicals and the loss of time of officials who are already overworked, all to no purpose, must be classed as waste. Since my investigation in February, much intensive work has been done on the situation, coupled with disinfection, but there has been no apparent control. The epidemic continues with a mortality of less than a quarter of one per cent. Considering the effort that has been made, Dr. Chapin informed me personally that the immunity conferred with so little danger must raise the question of the advisability of discontinuing further efforts to control. This attitude has many objections not least among which is the legal one. I am not able to see, however, how we can approve of efforts that produce no results, especially when there is sufficient evidence as to the cause of this difficulty to indicate the impossibility of getting results by further effort.

Diphtheria.—This disease was reported from nineteen places in the two Districts, twelve places in District No. 6, and seven in District No. 7. Coniston gave us the largest return of cases, there being twenty-eight cases reported from this village. I noted the prevalence of the disease from the card returns and made a trip to investigate but was informed that the epidemic was then under control, only one case being still in quarantine. This indicates the usefulness of the card returns to the district officers. It allows them to keep tab on the various outbreaks.

In passing, I would make this recommendation, that the clerk who receives these returns should make out a card for cases reported from unorganized districts and forward them to the respective district officer.

Measles.—Fourteen municipalities in Northern Ontario were visited with outbreaks of this disease during the past year. The chief epidemic began in Cobalt and spread into the townships of Coleman and Bucke. It was to be expected that a few cases would appear in Haileybury and New Liskeard; and I am glad to report that we have returns of but four cases from Haileybury and ten from New Liskeard. One hundred and fourteen cases represent the grand total.

It is interesting to note that there were no cases reported from such important centres as Fort William, Sault Ste. Marie and Sudbury. Cobalt reported ten deaths from measles on the 8th of November, and Sundridge seven deaths on the first of November. My opinion is that this represents carelessness on the part of the Secretary of the Board of Health in each case. An attempt is being made to verify the returns.

Typhoid.—The typhoid returns for the year are most interesting because of the absence of a number of old offenders such as Cobalt, Sudbury, and Cochrane in District No. 6, and Sault Ste. Marie, Port Arthur, Fort William, Fort Frances and Rainy River in District No. 7. Parry Sound reports five cases, all from out of town, which is a most creditable showing. This municipality is now classed with the safe ones. The health officer, W. R. Mason, M.D., and the Board of Health are to be congratulated.

Haileybury reports but one case and New Liskeard three cases. One must conclude that the old centres are being cleaned up and that the future should see steady and rapid disappearance of this disease.

Tuberculosis.—For no disease have so unsatisfactory returns been made as for tuberculosis. It is to be hoped that by concentrated effort a solution may be arrived at. The history of the returns for a number of years allows us to anticipate little better for tuberculosis from present methods. There can be no excuse for the reporting of more deaths than cases, yet this was what occurred in both districts.

Influenza.—The death rate of the epidemic varied considerably in different places and in the different waves. At Mattawa with 1,500 people there was almost as many deaths as in North Bay; while in Sturgeon Falls the second wave was much more severe than the first. At Elk Lake out of twenty-two Indians in five families, seventeen died. Apparently the resistance of that race was much less than that of the whites. South Porcupine had a large number of deaths among the foreigners, mostly Russian. It may be interesting to relate that several officials of one of the forbidden Russian Societies whom the police had been following for months were among those that succumbed.

The general character of the outbreak and the peculiar variations in its manifestations led me to the following conclusions.

1st. The armistice celebration was an important inciting influence on the explosiveness of the epidemic in many localities.

2nd. Quarantine was impossible since this would have tied up more than a third of all the houses in many places.

3rd. The want of effective precautionary measures is entirely due to want of knowledge as to the nature of the disease.

4th. The high death rate in the second and third decades strongly suggests that healthy adults did not take to bed in the early stages of the disease.

5th. Influenza is particularly infectious in its incipient stage, while the patient is still able to mix with the general public.

6th. "Flu" and the weather have no relation except that pneumonia complications are more common in the cold weather.

HOUSING.

During the past year the housing question has continued to become more and more acute. Health officers are frequently placed in the unenviable position where they have to condemn houses as unfit for habitation and then allow them to be used because there are no others to which the occupants can go. The most outstanding instance of this lack of housing, that has come to my notice, is to be found at Capreol, where the relay bed system has been adopted in the hotel operated by the railway which is owned by the Government of Canada. As there are three shifts in the shop one is entitled to his bed for eight hours only when he must vacate for another. Dozens (about 4) of box cars are used as houses and as many as eleven people live in one of these box cars. For many of these places no privies are provided; many are without wells or a water supply within reasonable distance, while the garbage is allowed to accumulate usually at the back door. Surely it is past time for passive action and the responsible parties must be told their duty and compelled to comply.

WATER SUPPLY.

The practical disappearance of typhoid from localities where there are public water supplies should commend itself to all municipalities that have this matter under advisement. These excellent results have not been attained through the purity of the raw waters in all cases, but rather to the perfection of the treatment of supplies which are often known to be seriously contaminated. Chlorination by improved appliance deserves the greatest credit. Undoubtedly it is largely the small initial cost that has made it so much more popular than filtration. The results at the Soo and at Parry Sound have been spectacular. Both of these places have raw waters derived from the Great Lakes but which are known to be seriously polluted. Typhoid has been eliminated from both towns. Two distinct methods of chlorination have been used. The Soo has an automatic Wallace and Tearnan liquid chlorine apparatus; while Parry Sound has a manual control chloride of lime plant. It must be said, however, that at Parry Sound the medical officer keeps an unusually close observation on the disinfection of excreta of all typhoid cases. This control has one weakness in that it is of necessity discontinued upon the recovery of the patient. This is a most commendable effort on the part of the medical officer of health.

Below is a list of municipalities which have public water supplies. Those marked * have reported typhoid during the year.

Parry Sound, all from out of town,* Burk's Falls,* Sudbury, Murray Mine, Copper Cliff,* Creighton, Crane Hill, Espanola, Massey, Chapleau, Coniston, Sturgeon Falls, North Bay,* Cobalt, Haileybury,* New Liskeard,* Englehart, Matheson, South Porcupine,* Timmins,* Cochrane, Iroquois Falls, Smooth Rock Falls, Sault Ste. Marie, Thessalon, Blind River, Fort William, Port Arthur, Fort Frances, Rainy River, Kenora and Keewatin.

SEWERS AND DRAINS.

The only municipality in Northern Ontario that felt itself capable of shouldering the heavy financial burden of a new sewer system was Timmins. Unfortunately they had not proceeded far enough with their disposal station to be able to use the drains during the winter months. This was due to the municipal authorities not having the by-law and other initial arrangements completed soon enough to allow the work to proceed early in the spring. Those that fathered the scheme are to be congratulated upon the effort which promises so much for the sanitary improvement of the town.

The use of the sewers at Matheson is still being held up for want of a disposal plant.

At last the report of the engineers has been presented to the Parry Sound Council setting out a scheme for uniting up the separate sewers into trunks. This is not before it was necessary as I counted thirty-five sewers discharging on the bank of the river above the water line.

The Algoma Eastern Railway asked me to visit their shops and approve of their arrangements for a subsurface disposal plant. My opinion was that the plan was quite adequate, but I asked them to send their plans through the proper channel and have them approved by the Department.

PRIVIES.

Many towns and villages have inefficient provision for the collection of night-soil. In others the collection is fairly satisfactory but the construction of privies is not supervised. The urgency of standardizing outhouses and providing for the elimination of flies is deserving of more consideration on the part of Boards of Health than is usually supplied. After having adopted a standard closet, much attention is required to keep them in repair.

While the collection is fairly satisfactory, in Sudbury, the most commendable feature is the regular monthly visits which are made by the Sanitary Inspector to every privy in the town. The necessity for these visits may be explained by saying that the costs of collection is charged to each one individually and is collected monthly by the Sanitary Inspector after inspection. He is in this way kept familiar with the condition of each closet and has opportunity for the correction of structural defects.

The matter of the privy is an important one in all municipalities and it is of much moment to your district officers because of the general imperfection of the methods adopted. I know of no municipality in this District where the collection of night-soil or the construction of outhouses are not open to some criticism. As to disposal it is customary to dump it into a ravine, from which it drains to some public water. Haileybury, Englehart and Parry Sound in District No. 6 and Kenora in District No. 7 have this imperfect disposal. A few have provided for the disposal in sand pits which to my mind is very efficient. Fort William is the best example of this method. In the summer many municipalities discharge into the town's sewers by a special improvised flushing manhole. North Bay has taken this course.

DAIRIES.

I visited dairies in Fort William, Port Arthur, Kenora, North Bay, Sudbury and Parry Sound, and found that while there had been some structural changes in a few isolated instances the quality of the milk had not improved, neither the fat content nor the cleanliness. In fact, there was some degeneration in the standard of both. That the want of time should have prevented me from giving our milk supplies the attention they so much require, following the war, is to be regretted. The conditions produced during the past four years had a destructive action on milk standards. Now the war is over the economic situation perpetuates those poor conditions which make the production of clean milk difficult. Boards of Health and Councils should be warned of the necessity of extra care with their milk supplies if the progress expected in child welfare is to be attained. Dairies which pasteurize milk only in the summer for the purpose of preventing it going sour, need careful supervision. Dairies in Port Arthur, Fort William and North Bay have adopted such commercial methods. Milk that requires this care is usually dirty or poorly handled. From my observations in the few municipalities that received some attention I was convinced that prosecution was in itself a poor method for correcting dirty milk. My opinion is that the local Sanitary Inspector must first become an authority on production; he must visit the dairies while they are in operation and discover for the dairyman the point in his technique where the dirt enters. Only where such methods have been adopted have the best results been attained. Kenora is a splendid example of this order.

VENEREAL DISEASE.

Medical officers have been urged to remind the physicians of their respective municipalities that it is their duty to report these cases. One is inclined to question the accuracy of the returns when considered in the light of such evidence as has been submitted by Day and McNitt, of St. Louis. They found 6 per cent. of the well-to-do (private ward cases) with syphilis, 13 per cent. of the middle class, and 20 per cent. of public ward cases. Similar evidence has been collected in Toronto and Montreal. The returns do not give anything approximating these figures and, indeed, I am convinced that this should not be expected; although on the other hand it is extremely doubtful that physicians are reporting all cases as required by the Act. Such high percentages as that quoted above represents the prevalence among the average sick but not among the average well. I am inclined to the belief that syphilis in many towns, villages and among the rural population is almost nil.

The intention of the Provincial Board to establish clinics where treatment will be guaranteed as to adequacy and thoroughness is in my mind a step in the right direction. The good will of the bulk of the medical profession should be secured. As clinics cannot be provided for towns and villages for many years, these men should be instructed as all treatment will not be taken out of their hands. This instruction should include the use and administration of Salvarsan and Neo-salvarsan and might be expedited by giving the district officers a thorough course.

Reports of Medical Officers.

Boards of Health should arrange for annual reports of medical officers to be distributed locally as soon as it is available and as widely as possible. The exchange of annual reports in the neighbourhood is required as health officers are working too much in isolation. I have been trying to have local boards adopt these procedures.

In the larger municipalities annual reports would be improved if the Department should establish a plan upon which annual reports would be made, as is the case in England. This would greatly facilitate the gathering of evidence for legislative purposes. The regularity of the headings would make the searching easy.

Conclusions.

One of Ontario's most pressing needs is a laboratory which should be established at North Bay. There is no other point in Northern Ontario that will serve the country as well, since it is the gateway to the rapidly developing Temiskaming District. It also has the best connection with the south and east of Parry Sound, the south of Nipissing and the Ottawa Valley as far as Ottawa. It is the only outlet to the Canadian Government Railway known as the Transcontinental. It also has direct connection daily with any part of Algoma or Sudbury Districts which would be served as readily from any other point, such as Sudbury. The only sections not so rapidly served are the eastern part of Parry Sound and the part of Manitoulin about Little Current. In the whole of the eastern part of Parry Sound there are only two physicians outside of Parry Sound itself which in any case would deal directly with the Toronto laboratory. The western part of Manitoulin Island maintains connection with the mainland in both winter and summer at Spanish or Cutler; from here it has direct connection with North Bay. The mails that come in on the Algoma Eastern from Little Current reach North Bay the same night and could be answered by wire within two hours and thirty minutes of the time that the same could be answered from Sudbury. North Bay is the logical point.

During the year the Department established an office at North Bay which is occupied by the district officer and the two sanitary inspectors. That the provision of this long-felt want has the approval of the public is to be found in the frequency with which those interested in public health find this office.

The enormous distances travelled by your district officials and the impossibility of complying with all the requests for assistance leads me to suggest the appointment of another district officer. For the same reason and because the number of camps exceed seven hundred it is impossible for two inspectors to see all the camps within a year. I would, therefore, recommend the appointment of another sanitary inspector. The new inspector might profitably spend say two months in this office to become familiar with camp sanitation.

Respectfully submitted,

W. Egerton George,
District Officer of Health.

DISTRICT No. 7.—*Continued.*

Sir,—I beg to report as follows for the year ending November 30th, 1919.

I was returned from five years' overseas service with the C.A.M.C., in August, 1919. I reported forthwith to your office and proceeded to Fort William to resume my duties as District Medical Officer of Health in charge of area 7.

The service referred to above was not devoid of opportunity and experience, which will prove invaluable in the field work of a District Provincial Medical Officer of Health. Aside from the preventative medicine activities associated with the command of a sanitary section and later of a hospital unit which handled over 21,000 Canadian patients. As a result of the persistant efforts of Major-General Foster, C.B., Director General Canadian Medical Services Overseas, executive C.A.M.C. Officers received the privilege of proceeding, over a period of one month, to different clinical centres or other centres of particular interest in their special branches of the medical science as practiced in civilian life. Under the auspices of this arrangement, the following centres were visited:

Reading.—General health administration town 100,000 population.

Hastings.—Utilization of a very hard water for domestic purposes.

Manchester.—Millk supply and conduct of infective fevers. All infected people and all necessarily detained for quarantine purposes are remunerated by the corporation for loss of income, and additional expenses resulting from infection. Medical men are paid for reporting infectious fevers, by the corporation. This, the home of the process of treatment of sewage by the Activated Sludge Process, was intensely interesting, especially as Dr. Vardon seemed so willing to have the visitor gain every possible insight into the method and success. The doctor made very pleasing reference to previous visits by the following Canadians, namely: Drs. McCullough and Hodgetts, before the war, and Mr. Dallyn and George Nasmyth since the war.

Edinburgh.—Fever Hospitalisation, mixing of two separate gravity water supplies to reduce the hardness of one. Cities in the United Kingdom are unable to deliver waters for domestic and commercial purposes, which are naturally hard without previously reducing this hardness by some method. Edinburgh had the best anti-venereal programme formulated that I was able to locate. The medical inspection of schools was found to be organized in an interesting manner.

Glasgow.—The numerous extensive water supplies of the city were found exceedingly interesting.

London.—The attendance at the Clinical Session in April of the British Medical Association was exceedingly interesting.

Upon arriving at Fort William, I obtained an office in the Court House in Fort William and assembled my Board of Health equipment and files. A circular letter was at once sent out to all the municipalities of the district, announcing that I had assumed the duties of District Officer again and requesting that they communicate to me any matters in which I might be of assistance to them. In September, Kenora and Keewatin were visited, both presenting difficulties for solution that had not been communicated by letter. Kenora was anxious to obtain control of the water front of the Devils Gap in order to protect the water supply from contamination by probable summer residents. The town has succeeded in this. Keewatin had an unsanitary condition at the city dock being caused by the settling there in front of a city sewer of a derelict house boat, belonging to a citizen. The owner has agreed to remove the derelict within 30 days from the date of the first passenger steamer from Keewatin to Kenora in 1920.

It was decided to make a hurried visit to all the municipalities as soon as possible. Fort Frances and Rainy River were visited. Rainy River complained that the order issued by the Provincial Board of Health to the Canadian Northern Railway to install an intercepting detritus chamber between the company's sewers and their outflow into the town sewers, had not been complied with. This, upon investigation, was found to be true. The previous spring several basements of citizens were flooded presumably as a result of blocking of the town sewer by C.N.R. detritus not intercepted. There was no evidence of detritus passing to the town sewer at the time of my visit and promise to have the necessary alteration done if recurrence of the trouble occurred closed the matter.

Schreiber was visited *re* chicken pox there.

Manitoulin Island was visited, the following centres being touched, Little Current, Manitowaning, Mindemoya and Gore Bay. Reports were received of people supposedly infected with typhoid fever by water at Little Current. The notices posted in the hotels there had been removed, informing people the water in the taps was dangerous to health. The principal offender had died, so no action was taken. It is unfortunate that, in spite of the surveys, recommendations of solutions of the difficulty that are not expensive and orders by the Provincial Board of Health to the municipality to right the matter, nothing has been done. If no action is taken *the place should be advertised as an unsafe place to visit.*

Crossing from Gore Bay to Blind River a similar state of water supply is found with the exception that the hotel keeper has notices up and personally warns guests not to drink water from the taps. Other water is provided. Thessalon, Nesterville, Bruce Mines and Sault Ste. Marie were visited.

At the Soo the purchase by the city of the Tagona Water Company's franchise and the inauguration of the present happy state of affairs, is an excellent culmination of the fight of the Ontario Provincial Board of Health and the local Board of Health against opposition, at times, from the citizens' own representatives, to save the lives of the citizens of this community. The climax to the enterprise, the details of which Dr. Bell alone is acquainted with, was reached in 1914, by a week's Police Court proceedings against the water company, giving publicity to the company's wilful neglect to properly dose the water, in case of fires in the city neccessitating increased pumping to increase pressure in the water mains. Of course the neglect was not intentional, but was nevertheless very costly, in illness, for the citizens.

In October, the meetings of the American Public Health Association were attended, with great advantage. Crowded sessions, filled with papers and discussions on live subjects pertaining to Public Health, by America's leading men, granted an educational advantage of considerable import. Duluth and Chicago health centres were visited en route.

Towards the close of October three suspicious cases of encephalitis lethargica were seen in Fort William. I proceeded to Fort Frances *re* the institution of Medical School Inspection there and went on to Winnipeg and consulted Dr. Douglas and Dr. Bell, Provincial Board of Health. A complete history of the incidence of hiccough and encephalitis lethargica was given the writer and eighteen cases seen, and the results of eight autopsies were provided, all of which was exceedingly interesting and helpful.

The scarlet fever situation at the head of the lakes is still a very unfortunate state. Fort William provided over 400 cases with but one death in 1919, and Port Arthur provided in the same period over 100 cases with but one death. The contributing causes in this epidemic, now in its third year, going stronger than ever, seem to be:

1. Reported lack of co-ordination of effort in the early stages of the outbreak.

2. Mildness of the type and irregularity in the clinical picture presented, or lack altogether of a clinical manifestation.

3. Public controversities, which, I think, weakened the morale of the citizens, in their support of the endeavour of the Local Board of Health.

4. Some cases being so mild as not to attract the attention of the household that there was a suspicion of scarlet fever; mild cases noted but not thought to be it and no doctor or Board of Health Representative permitted to see it until the mild rash had disappeared; well pronounced cases wilfully concealed and cases reported in households and quarantined there not kept effectively from other members of the house.

5. Cases treated in the Isolation Hospital returning to the home non-infective, in so far as the M.O.H. could determine, and infecting others. This might be due to intermittent discharging nasal accessory sinuses or to intermittent albuminuria, missed when tested for. Cases entering the General Hospital or being operated in their homes for nasal or tonsil necessities, within the incubation period post operative, infecting others in contact with them. This has occurred repeatedly, adults infecting children. The adult not having the suspicion of ever having had scarlet fever, or often of having been in contact with it.

6. Citizens dreading repeated periods of quarantine, will fully infect or expose non-infected children to cases remaining in the house. The low death rate one-sixteenth of one per cent. being cause of indifference.

A vote in the two cities to ascertain whether they wish to unite for purposes of municipal effort is to be taken at New Year's. If it carries the first branch to be brought under one office should be the Health Departments of the two cities and the immediately adjacent organized townships. This would give central control to all the inseparable area from an epidemiological aspect. It would give uniform policy and administrative methods and make for increased efficiency at decreased cost.

Port Arthur Water Supply, which has such a finished appearing plant, lacks one important $3,000.00 apparatus which should be installed, which would make the constant efficient dosage of chlorine gas fool proof. The variation of the dosage does not automatically change with the changing quantity of pumpage—it should. The Pump House should have a treatment plant for the latrine or W.C. installed there for the use of employees.

Total expenditure for this period, $542.40.

All of which is respectfully submitted.

I have the honour to be,

Sir,

Your obedient Servant,

R. WODEHOUSE,

Provincial District Medical Officer of Health, Area Number Seven.

REPORT OF BUREAU OF CHILD WELFARE

1919

I beg to submit herewith the report of the Bureau for the year ending December 31st, 1919.

EXHIBITS.

During the year the Child Welfare Exhibit was shown in various centres in the Province as follows:

(1) Picton in January.
(2) Medical Congress in Toronto in June.
(3) London Child Welfare Week in June.
(4) Brampton Child Welfare Week in June.
(5) St. Thomas (under auspices of Women's Civic Association) in June.
(6) Cobourg (under auspices of the Local Branch of the Ontario Women's Citizen Association) in July.
(7) Almonte (under auspices of the I.O.D.E.) in October.
(8) Orangeville (under auspices of the Women's Institute) in October.

It was also a feature of the following Exhibitions and Fall Fairs:

(1) Canadian National Exhibition, Toronto.
(2) Kingston Exhibition.
(3) Mount Forest Fall Fair.
(4) Caledon Fall Fair.
(5) Arthur Fall Fair.

A detailed report upon the work of the Exhibit by Miss B. Knox, Nurse in charge, is appended.

The Bureau regrets that it was impossible to meet requests for the Exhibit during 1919 from the following:

(1) Sudbury.
(2) Barrie Fall Fair.
(3) Whitby.
(4) Streetsville.
(5) St. Catharines.
(6) Carleton Place.
(7) Collingwood.
(8) Renfrew.
(9) Sault Ste. Marie.

LITERATURE.

During the period from the organization of the Bureau until this spring twenty-five thousand copies (entire first and second editions) of "The Baby" were distributed. A third and revised edition has been published this year, copies of which are distributed free of charge upon request and in connection with the Child Welfare Exhibit.

Through the courtesy of the Gerlach-Barklow Company who kindly imported and loaned the colour plates for both (as their "contribution to the mothers and babies of Ontario"), it was possible for the Bureau to offer to each mother attending the clinics an attractive souvenir which served as a record of the baby's weight, etc.; and also to supply to local committees a very artistic poster for advertising the Child Welfare Exhibit.

MEETINGS.

During the year requests for speakers from the Bureau were received from various organizations:

Women's Canadian Club, Orillia, in January.
Child Welfare Week, London, in June.
Baby Week, Brampton, in June.
Child Welfare Exhibit, Cobourg, in July.
"Save a Child Campaign," Hamilton, in October.

General View, Public Health Exhibit, Canadian National Exhibition, 1919.

CONVENTIONS.

An International Child Welfare Conference was held in Washington, D.C., in May, to which the Director of the Bureau was invited. Great Britain, France, Belgium, Italy, Serbia and Japan were represented, also several Provinces of the Dominion. The programme embracing, as it did, various phases of Child Welfare, was very complete and most inspiring.

In June, the Canadian Public Health Association held their annual meeting in Toronto, the sessions of the Child Welfare Section being of particular interest. The Ontario Health Officers' Association met at the same time.

In November, the Bureau was represented at the annual meeting of the American Child Hygiene Association (formerly the American Association for Study and Prevention of Infant Mortality) in Asheville, N.C.

CHILD WELFARE WORK.

During the year, advantage was taken of opportunities which were presented whereby it was possible for officers of the Bureau to inspect the work of the Child Welfare agencies in the following centres:

(1) Montreal.
(2) New York (maternity centres).
(3) Washington, D.C.
(4) New York State.
(5) Massachusetts State.
(6) Boston City.

All of which is respectfully submitted.

MARY POWER,
Director.

REPORT OF NURSE IN CHARGE.

In presenting a report upon the work of the Child Welfare Exhibit during 1919, I may say that the Exhibit was on tour from the last week in January until October, and was shown on thirteen occasions, varying in length of stay from one day to one week.

During November, under the auspices of the Women's Institute Branch of that section, it was the privilege of your nurse to carry on a demonstration of Public Health Nursing in the Village of Haliburton and the surrounding district, with the result that the Institute went on record by passing a resolution to the effect that they would be willing to undertake a certain portion of the expense incident to the employment and maintenance of a nurse.

PICTON.

Our first Exhibit in the New Year was held in Picton in January under the auspices of the Home and School Club, to whose good work in advertising and canvassing during the previous weeks, the success of this effort was chiefly due.

The Exhibit was displayed and clinics conducted in the Methodist Sunday School Room with good attendance, and all who attended the clinics expressed the wish that such help might be permanently available.

Two very successful consultations were made possible owing to the generous assistance given by the local doctors, graduate nurses off duty and voluntary helpers who proved to be most useful in performing the clerical work in connection with the clinics.

In addition to the usual consultations, demonstrations in Infant Care and preparation of Infant Foods were given to a company of Girl Guides. We were much gratified at the intelligent interest shown by these young girls and were pleased to be afforded this opportunity for education along practical health lines.

The evening programme proved very interesting to the large and enthusiastic audience. Several addresses on different phases of the work were given by local doctors, while music rendered by local talent followed by the Provincial Board of Health Moving Pictures, accompanied by lectures given by Dr. Clinton, completed an enjoyable evening.

LONDON.

The work in London is progressing very favourably. In June the Exhibit went to London to assist with their second Annual Baby Week. The organized assistance of the press, hospitals, physicians and nurses was secured to make the effort a success. The plan of campaign was similar to that of last year, the city being divided into districts, and the mothers directed to bring their babies on the days allotted to them.

Clinics were held in the Technical School each afternoon, where the babies were weighed and measured and thorough physical examinations were performed by the doctors in attendance, who also advised the mothers regarding the condition of their children.

Child Welfare Exhibit, Canadian National Exhibition, 1919.

A series of approved diets for children of pre-school age together with tempting and nourishing school lunches, were displayed by the Dietitian from Victoria Hospital.

St. Joseph's Hospital exhibited a very attractive and practical nursery well within the means of the average home, a nurse being in attendance to explain the necessity for and use of each article.

Another exhibit which was very instructive was the Model Equipment showing various necessary articles for the care of tuberculous patients, shown by the Byron Sanitarium.

That the second annual Baby Week was an unqualified success was clearly shown by the attendance: 400 babies passed through the clinics during the three days of the Exhibit.

It was the privilege of your nurse to accompany the London Child Welfare Nurse on her rounds the day preceding the Exhibit. A number of interesting cases were visited, and the interest shown by the mothers, together with the cordial welcome the nurse received, proves that the work is making progress and is being appreciated in London.

Brampton.

Under the auspices of the Agricultural Department the Exhibit was shown and clinics conducted in Brampton early in June. The Women's Institute, Girls' Club, local doctors and nurses combined to make the event very successful. A special effort was made to reach all mothers by sending out circular letters.

The town and surrounding country were divided into sections, the mothers being instructed to bring their babies on the day allotted to their district.

Clinics were held two afternoons under the direction of the local doctors, with good attendance, although the number was considerably less than last year.

The Women's Institute arranged a series of diets for children from twelve months to six years, while the members of the Girls' Club helped in various ways to make the clinics a success.

St. Thomas.

In June the Exhibit went to St. Thomas under the auspices of the Women's Citizen's League.

During the preceding weeks the Committee carried on a publicity campaign, the success of which was shown by the large attendance during the three days of the Exhibit.

Six consultations were made possible by the Local Medical Society generously arranging that four doctors attend the clinics morning and afternoon. This service rendered by busy doctors, was greatly appreciated by the Bureau. Two hundred and two babies attended the clinics and received thorough physical examinations.

In the evening, music, lectures and moving pictures along health lines combined to make a good programme.

During our stay a Young People's Society requested that your nurse speak to them on the work of the Bureau, especially pointing out how they might help in establishing a permanent nurse in St. Thomas. We were very pleased to be afforded this opportunity and much gratified to hear the interesting discussion following the short talk given by your nurse.

Cobourg.

To arouse interest in the Baby Week held in Cobourg in July under the auspices of the Ontario Women's Citizen Association, a parade of school children carrying suitable banners and streamers was arranged. That the effort was a success was shown by the interest manifested by the number of mothers who attended the clinics.

The Exhibit was shown in the Methodist Church Sunday School Hall, clinics being conducted by local physicians who were greatly interested in the work.

A display of proper diets for children from twelve months to six years, prepared by the dietitian from the Collegiate Institute, was greatly appreciated and caused considerable comment.

Following the clinics a social hour was arranged for mothers when the Committee served tea and assisted in caring for the babies, while notes were compared as to the relative points each child had made. All who attended these clinics and social hours expressed the wish that they might be permanent.

Child Welfare Clinics, Canadian National Exhibition, 1919.

CANADIAN NATIONAL EXHIBITION.

The Child Welfare Exhibit this year was given more space than in former years, occupying the north wing of the Government Building. Clinics or Conferences were again possible through the kind courtesy of the Chief and Staff of the Department of Public Health of the City of Toronto, and some children between the ages of one and six years were examined. The older children were weighed by "Chin-Chin," the Health Clown. A section was devoted to diets for children from the first table food until six years of age, and supervised by a competent dietitian. Another section contained an exhibit of clothing for older children in addition to a model infant's layette. A nurse gave demonstrations of bathing and dressing the baby, also the preparation of artificial food.

KINGSTON.

The Local Council of Women were sponsors for the Exhibit at the Kingston Fall Fair which was only fairly well attended.

Owing to local conditions clinics were not held during our stay in Kingston, although demonstrations in Infant Care and preparation of Infant Foods, with talks on general health subjects were given daily by our nurse.

The Ontario Provincial Board of Health Moving Pictures accompanied by lectures given by Dr. Maloney were shown every afternoon and evening.

MOUNT FOREST.

In September, the requests to send the Exhibit to Fall Fairs became so numerous and urgent that it was necessary to appoint two additional nurses to carry on the work.

The Exhibit went to Mount Forest Fall Fair in September at the request of the Women's Institute.

The Baby Clinic was fairly well attended by the mothers of the surrounding district who expressed the hope that a permanent station might be established. After the babies were weighed and measured, the doctor in charge made thorough physical examinations and gave advice regarding remedial work necessary. Children apparently in robust health, upon examination were found to be suffering from defects requiring immediate attention.

Chin-Chin, the Health Clown, who created considerable interest by clever and witty health talks, weighed the older children and taught them general health principles.

The Demonstrations in general nursing care of children given by your nurse were greatly appreciated and caused considerable discussion.

Another part of the Exhibit which was greatly appreciated by the mothers attending the clinic was proper diets for children from two to six years, together with nourishing school lunches attractively displayed by the Women's Institute.

CALEDON.

Many mothers took advantage of the clinic held at the Caledon Fall Fair to have their babies weighed and examined. Older children were also eagerly brought to the Clinic for examination, numerous questions being asked regarding diet and clothing for the children.

The demonstrations in general Infant Care were well attended and lively discussions regarding certain disputed points made this session very interesting.

A series of diets for children from twelve months to six years also caused considerable comment and kept the attendants busy giving information on the reasons for certain articles of food being included and others being totally excluded.

The Home Nursing Demonstrator for Peel County gave invaluable assistance during our stay in Caledon.

ORANGEVILLE.

The Exhibit went to Orangeville in September under the auspices of the Local Women's Institute, and was displayed in the Auditorium of the Public Library with fair attendance, twenty-seven babies being weighed, measured and examined.

Chin-Chin, the Health Clown, was greatly appreciated by the older children.

Demonstrations in General Infant Care were given to pupils from the High School and the senior classes from the Public School. We were pleased to be given this opportunity for Health Education.

ARTHUR.

In October, the Directors of the Arthur Fall Fair requested that the Exhibit be sent to them, thereby enabling the rural mothers attending the Fair to take advantage of the clinics.

Child Welfare Exhibit, Canadian National Exhibition, 1919.

A large tent erected in the Fair Grounds served as clinic and Exhibit space. The clinic was fairly well attended, twenty babies being weighed and measured. The demonstrations in the general care of infants and preparation of Infant Foods created considerable interest and discussion among the mothers present, who expressed their appreciation of the opportunity afforded them to study newer and more efficient methods of caring for their children, also hoping that they might have a permanent clinic very soon.

The older children were very much delighted with Chin-Chin, the Health Clown, who weighed them and gave witty Health Talks.

ALMONTE.

Under the auspices of the Independent Order of the Daughter of the Empire, the Exhibit was displayed and clinics conducted for three days in October, in Almonte Town Hall.

The consultations which were conducted under the direction of Dr. Maloney, assisted by local doctors, were well attended, thirty-seven babies being examined.

Moving pictures were shown on two evenings accompanied by lectures given by Dr. Maloney.

NURSING DEMONSTRATION, HALIBURTON, ONTARIO.

Invitation.

The demonstration in Haliburton was undertaken upon the request of the Women's Institutes. The work was commenced on October 17th and terminated on November 6th, being a period of three weeks, during which time the following work was done.

Visits.

Beside Nursing Visits	38	(Babies 21; Adults 17)
Number of Patients	10	(Babies 9; Adults 1)
Eligible Visits	45	
Follow-up Visits	13	
Total Visits	96	

Besides nursing visits are those to patients requiring nursing attention in the homes.

Canvass visits to homes of well babies are known as "eligible" visits.

Follow-up visits are made after the baby has attended the clinic.

Conferences.

Six conferences for well babies were held with a total attendance of twenty-eight. The usual routine was to have infants and children up to six years of age weighed and measured by the nurse and given a complete physical examination by a physician who also advised the mother.

A small Child Welfare Exhibit consisting of posters on pre-natal, infant and child care, infant's layette, outfit for child up to six years of age, etc., was set up in the consultation room, and carefully explained to the mother by the nurse.

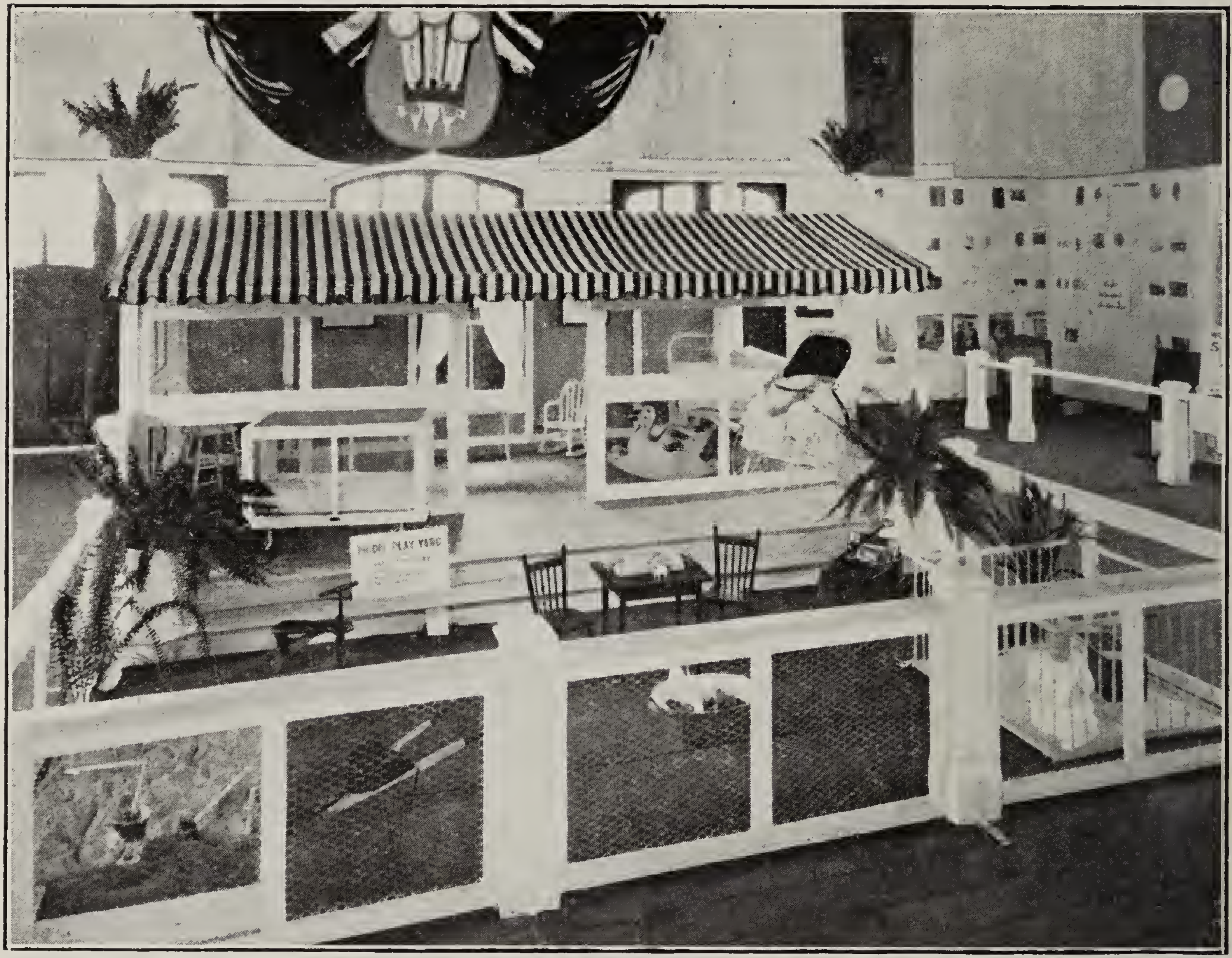
It might be added in connection with the visits divided as above that other conditions were found where the advice of a nurse was of valuable assistance. For instance, four expectant mothers were advised in regard to proper pre-natal care. Again, during the canvass a home was visited where two cases of suspected typhoid in early stages were found.

Special Work.

The nurse was also called upon to do the following which might be termed extra work, as follows:

(1) Assisting doctor on four occasions, all of which were operations in the home (one in town, three in country), including two tonsils and adenoids and two circumcisions. Each of these patients was visited later.

(2) A mother's meeting in a rural school house. As an evidence of the mothers' interest it is to be noted that twenty-three mothers came to the school for the afternoon conference, many of whom had been obliged to walk several miles. The nurse talked to them upon pre-natal care, infant and child care, including breast feeding, clothing, etc.



Child Welfare Exhibit, Canadian National Exhibition, 1919.

Results.

The afternoon before leaving the nurse was asked to attend a special meeting of the Women's Institute, when the members expressed their appreciation of her efforts and the hope that some permanent work would be undertaken in the town and district along the line of Visiting Nursing and Public Health. Their gratitude took a practical form when the Institute went on record by passing a resolution to the effect that they would be willing to undertake a certain portion of the expense incident to the employment and maintenance of a nurse.

NOVEMBER, 1919.

Table showing defects found among children under six years who attended Haliburton clinics in connection with the Child Welfare Exhibit, Provincial Board of Health of Ontario.

Town	Defective Eyes	Defective Teeth	Diseased Tonsils	Adenoids	Total Defects	Total Attendance
Haliburton	1	5	4	2	12	28
Total..........	1	5	4	2	12	28

The following statement is a summary of defects found upon examination among children attending clinics in connection with the Child Welfare Exhibit for which records were available.

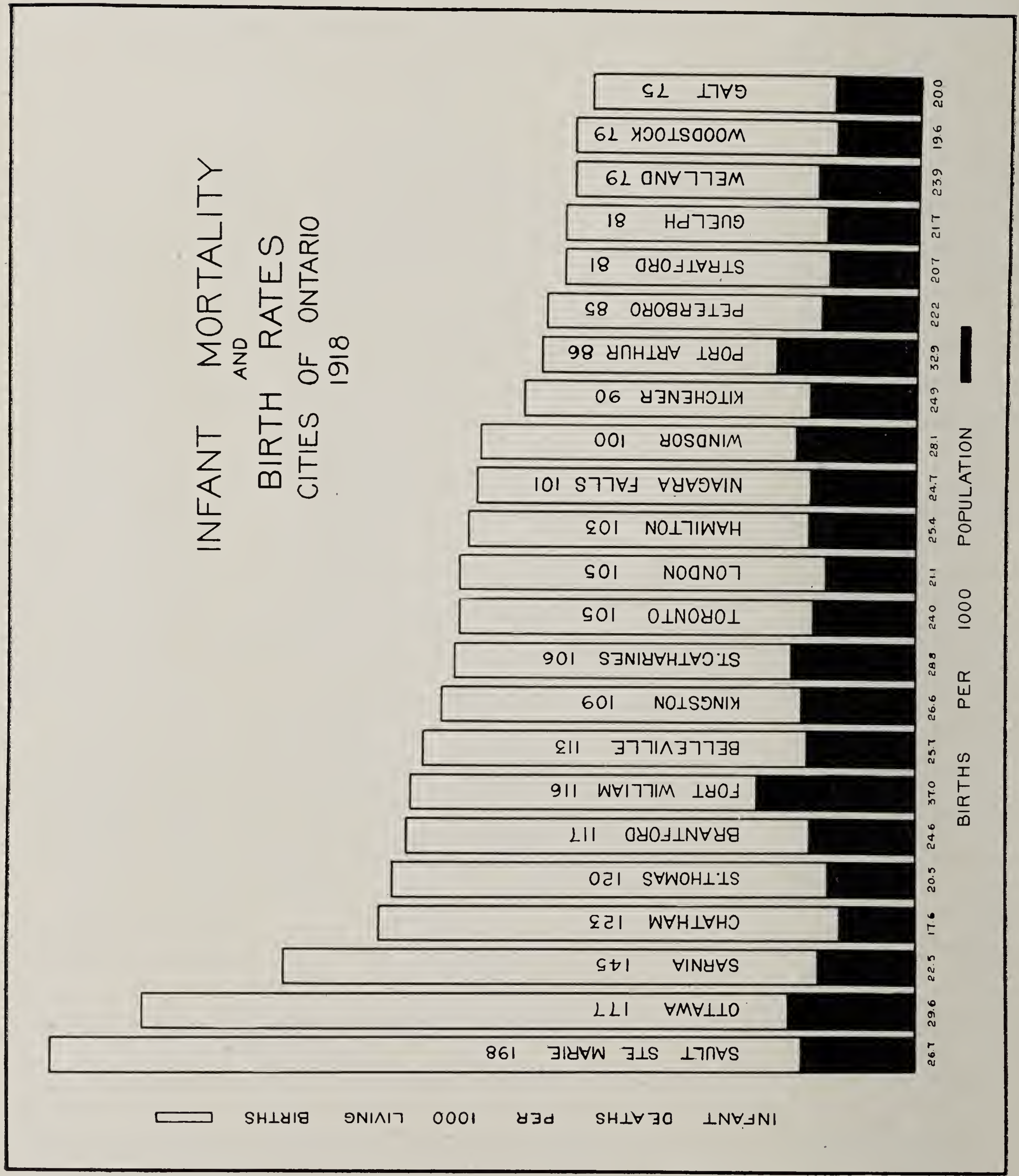
1919.

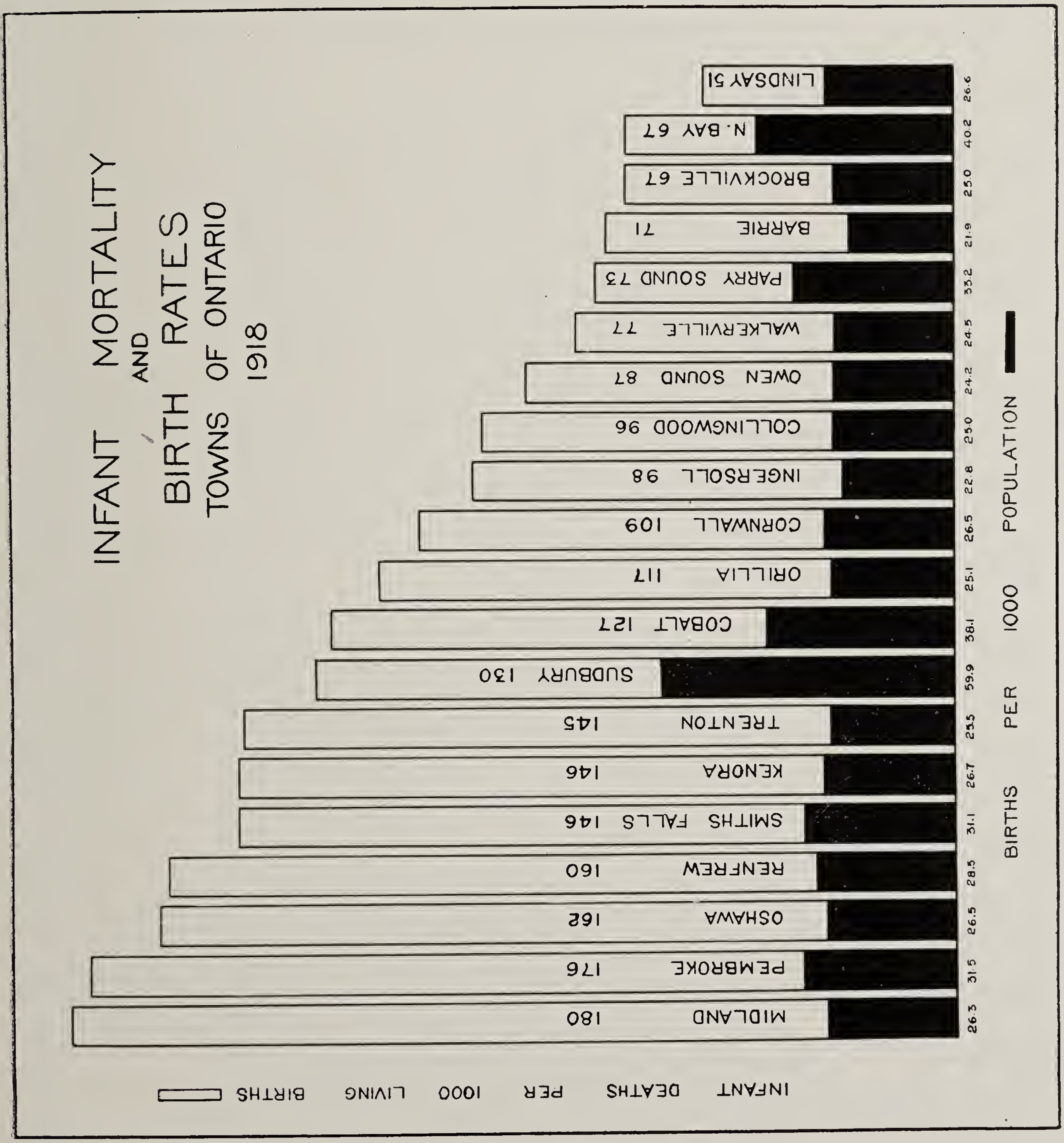
Table showing defects found among children under six years who attended clinics in connection with the Child Welfare Exhibit, Provincial Board of Health of Ontario.

Town	Diseased Tonsils	Adenoids	Decayed Teeth	Enlarged Glands	Defective Eyes	Under-nourished	Total Defects	Total Attendance
Picton..............................	5	......	7	......	......	1	13	33
St. Thomas..........................	22	8	11	8	3	14	66	202
Brampton	5	1	1	1	......	2	10	40
Cobourg	4	1	2	......	......	1	8	49
Almonte.............................	8	......	......	......	1	4	13	38
Orangeville.........................	5	1	2	1	......	......	9	18
Mount Forest........................	2	1	1	......	......	......	4	4
Canadian National Exhibition (non-residents of Toronto only)................	4	......	3	1	......	2	10	92
Arthur	10	......	1	......	......	......	11	20
Total	65	12	28	11	4	24	144	496

All of which is respectfully submitted.

B. KNOX,
Nurse in Charge.


INFANT MORTALITY
AND
BIRTH RATES
CITIES OF ONTARIO
1918
GALT 75
WOODSTOCK 79
WELLAND 79
GUELPH 81
STRATFORD 81
PETERBORO 85
PORT ARTHUR 86
KITCHENER 90
WINDSOR 100
NIAGARA FALLS 101
HAMILTON 103
LONDON 105
TORONTO 105
ST.CATHARINES 106
KINGSTON 109
BELLEVILLE 113
FORT WILLIAM 116
BRANTFORD 117
ST.THOMAS 120
CHATHAM 123
SARNIA 145
OTTAWA 177
SAULT STE MARIE 198
20.0
19.6
23.9
21.7
20.7
22.2
32.9
24.9
28.1
24.7
25.4
21.1
24.0
28.8
26.6
25.7
37.0
24.6
20.5
17.6
22.5
29.6
26.7
BIRTHS PER 1000 POPULATION
INFANT DEATHS PER 1000 LIVING BIRTHS


INFANT MORTALITY
AND
BIRTH RATES
TOWNS OF ONTARIO
1918
LINDSAY 51
N. BAY 67
BROCKVILLE 67
BARRIE 71
PARRY SOUND 73
WALKERVILLE 77
OWEN SOUND 87
COLLINGWOOD 96
INGERSOLL 98
CORNWALL 109
ORILLIA 117
COBALT 127
SUDBURY 130
TRENTON 145
KENORA 146
SMITHS FALLS 146
RENFREW 160
OSHAWA 162
PEMBROKE 176
MIDLAND 180
26.6
40.2
25.0
21.9
33.2
24.5
24.2
25.0
22.8
26.5
25.1
38.1
59.9
23.5
26.7
31.1
28.5
26.5
31.5
26.3
BIRTHS PER 1000 POPULATION
INFANT DEATHS PER 1000 LIVING BIRTHS

Report of the Provincial Medical Inspector

DR. R. W. BELL

REPORT *re* SMALLPOX.

To Chief Officer of Health of Ontario.

Sir,—During the year 1919 smallpox has been unusually prevalent in this Province, especially in Toronto and vicinity, in the last three months. In other sections, up until this time, not more than the average number of cases were reported. In Toronto, however, earlier in the year there were numerous mild cases which were mistaken for chickenpox and treated at such. Several of these cases I saw and diagnosed as smallpox but my diagnosis was disputed by the city health authorities who declined to take them to the Isolation Hospital and left them in their own homes as chickenpox cases. One of these you saw yourself with me and agreed with my diagnosis and took the precaution to notify the city authorities that as a result of their persistent error in diagnosis they probably would sooner or later have a serious outbreak on their hands. This prediction has come true and the error I understand has been admitted but too late to prevent the epidemic which has overrun the city and without a doubt has been communicated to many other sections of the Province.

The spread has been so rapid in the city since the latter part of September that there have been many hundreds of cases reported not unfrequently 30-40 new cases a day. During the last three months of the year I have frequently been asked by the civic health physicians who were visiting all suspected or reported cases, to aid them in their diagnosis and this I willingly did, seeing probably a hundred cases or more with either Dr. Phair or Dr. Berry who I found were extremely careful and correct in their diagnosis. In only some half dozen cases did we find the cases to be other than smallpox and I was well pleased to confirm their already formed opinion.

Wholesale vaccination was carried on so far as voluntary submission to it could be induced, but at the close of the year the epidemic was still raging and simply had to burn itself out as we had no means of enforcing compulsory vaccination.

The percentage of deaths was small, only about nine cases in the Province proving fatal. Very few cases were of the confluent type.

I find from our records that during the year there were reported 3,046 cases with 9 deaths, 2,561 of these cases with 2 deaths occurring in the last two months of the year. Toronto, of this number, contributed 1,749, all but 8 being reported in November and December while without a shadow of doubt there had been many mistaken and unreported cases earlier in the year. At the present date in the early months of 1920 the epidemic is still raging but gradually dying out.

A violet propaganda against vaccination was carried on by the anti-vaccinationists in the city during the epidemic which I doubt not resulted in increasing largely the number of cases. The voluntary vaccination of the many believers in it has aided materially in stamping out the disease. In Toronto alone the civic-authorities report vaccinations and in the Provincial Board of Health office 423 were done, while doubtless several thousand were done by their family physicians.

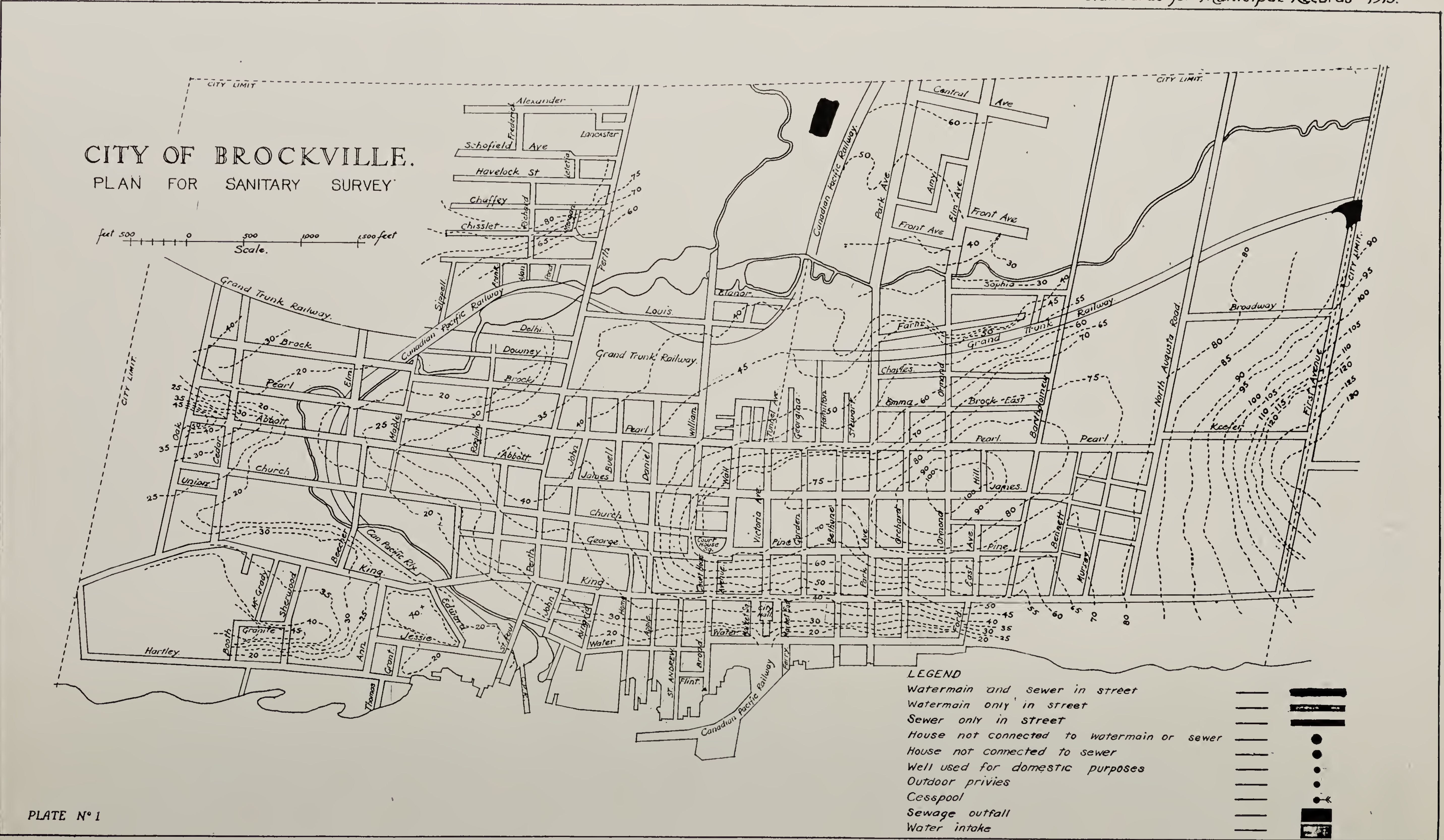
My personal experience of over fifteen years with the Provincial Board of Health has proven to me the efficacy of vaccination. I have seen several thousand cases of smallpox and fully 90 per cent. of them were in persons never vaccinated, the other 10 per cent. with two exceptions not having been vaccinated for many years. In only two cases have I seen smallpox in persons successfully vaccinated within from 5 to 7 years, while thousands of equally exposed persons escaped the disease.

I have the honour to be, Sir,

Your obedient servant,

R. W. Bell,

Provincial Medical Inspector of Health.



CITY OF BROCKVILLE.
PLAN FOR SANITARY SURVEY

PLATE No 1

Report of the Provincial Sanitary Engineer

F. A. DALLYN, C.E. (Tor.)

To the Chairman and Members,
Provincial Board of Health, Ontario.

Gentlemen:

I have the honour to submit the following report upon the work of your Sanitary Engineering Division for the year 1919. The following applications were received and approved:

Waterworks extensions	78	Certificates	$2,177,858 65
New supplies and equipment	11	"	519,166 91
Water purification (new)	3	"	25,191 90
Sewer extensions	157	"	2,544,239 32
Sewage disposal	7	"	242,241 75
Re sewerage	164	"	$2,786,481 07
Re water	92	"	2,722,217 46
	256	"	$5,508,698 53

The total estimated cost of the work undertaken shows a very decided increase over previous years and should it continue will require additional office help to keep pace with it. It is very gratifying to note that much of this work is being undertaken by municipalities other than the City of Toronto. This indicates a definite effort on the part of the smaller municipalities to extend the public water supplies and sewerage systems and to generally improve the amenities of life in the smaller centres.

1915—	Total applications	286;	Total estimated cost	$4,679,496 74
1916—	" "	190;	" " "	2,010,070 42
1917—	" "	186;	" " "	2,880,534 72
1918—	" "	146;	" " "	1,590,658 39
1919—	" "	256;	" " "	5,508,698 53

During the coming year it is my intention, provided the necessary funds are available, to utilize the services of a number of the graduates in Sanitary Engineering for the purpose of completing our information with respect to the extension of the public utilities—water and sewerage—in the smaller towns. On the opposite page is shown a municipal plan arranged for plotting sanitary survey information. The legend in lower right hand corner suggests the information to be indicated on the plan.

It is anticipated that section 25 ss. (2) of the Public Health Act* will be amended next Session and provide that where the local board of health *in a city or in any town, village or police village in which a sewerage system has been estab-*

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* Amendments passed 1st Session, 15th Legislature, 10 Geo. V, 1920.

lished, recommends sanitary conveniences should be installed in any building, and is of the opinion that the owner of the premises is unable to pay the expense of the same at once, the municipality may install suitable sanitary conveniences at the expense of the owner, and the board may direct that the cost, including interest at a rate not exceeding six per centum on the deferred payments, be paid by the owner in equal successive annual payments extending over a period not exceeding five years, and that such annual payments be added by the clerk of the municipality to the collector's roll and collected in like manner as municipal taxes.

The cities of the province with but five exceptions are all chlorinating the water supply, and of these five exceptions three obtain their water from springs of unquestioned purity, and the remaining two furnish satisfactory water as determined by analysis and sanitary surveys.

MUNICIPAL WATER SUPPLIES, ONTARIO

Per cent. of total amount consumed in the Province

——	Chlorinated	Filtered	Springs	Pure Lake Supply
Cities...........................	82%	42.5%	9.5%	9.7%

Typhoid Death Rate per 100,000 Population 4.3 for the year 1919

The typhoid rate for 1919 is a matter for congratulation, and it may now be said that the cities in Ontario are free of typhoid fever.

The towns in Ontario furnish hospital accommodation for much of the construction work and camps, and as a consequence their typhoid rate continues higher than that of the cities. Twenty-nine deaths are reported from the towns, mostly hospital cases.

The water supplies and sewerage systems in the smaller towns, despite this excellent showing, still leave much to be desired. A continued effort is necessary. Amongst the larger towns, Lindsay, Orillia, Oshawa, Owen Sound, Renfrew, Hawkesbury, Arnprior, Rockland, Cobourg, Port Hope, Weston, Dundas, Dunnville, New Toronto, Wallaceburg, Haileybury and Amherstburg, are now operating filters. Many of the remaining towns are fortunate in having satisfactory deep well or spring supplies. Unfortunately, a few are labouring with highly polluted water supplies, and so situated that no other source is available. These towns must filter and chlorinate; almost without exception they are now chlorinating, and while the incidence of water-borne disease has to a large extent been minimized municipalities should not rely solely upon chlorination. The duty of the board is to press for more adequate protection.

The requirements of the recent development of housing, particularly where it has been influenced by the Government control of grants, has directed the attention of many of the smaller municipalities to the need of sewers. It has also directed the attention of certain of the municipalities to the fact that in many instances sewers have not been taken advantage of as freely as could be desired. No greater improvement to housing generally, can be made than by promoting the connection of all houses to sewers and by providing hot and cold water and baths.

During my absence from Canada on military service in Siberia, I employed some of my leisure moments in observing the eventful roles taken by the public utilities, such as railways, street cars, municipal water supplies, public baths and sewerage, in the modern drama of preventive medicine. Siberia is particularly fertile for observations of this sort. The settlement in the larger cities has been comparatively recent. The housing is on a par with modern developments, the number of dwellings per acre being somewhat less than in residential districts in Canada. In Harbin particularly, some attempt at a Garden City suburb was in process of development, and it presented the same pleasing features that attend such developments elsewhere. The crowding of families into one room tenements was very much in evidence in all Siberian cities, a direct result of the war and the considerable refugee population. To one looking behind the screen everywhere there was evidence of the disorder brought about by the collapse of beaucratic or capitalistic control, and in conference there was very much in evidence a pedantic spirit. My interpreter often has said to me "the curse of the old beaucratic control is the talking committee."

My work as Director of the Allied Anti-Typhus expedition brought me in close touch with the municipal and military authorities. As the work proceeded the appalling lack of many of the fundamental necessities, such as soap, blankets, fuel, in consequence of the disorganized condition of the railway and the prosecution of the civil war, led me to take a somewhat more lenient view of the talking committee, for I felt that were some of our own health bodies confronted with the same lack of supplies and forced to rely on truly altruist service their progress would also be unsatisfactory to the casual observer.

Siberia suffers from many of the epidemic diseases common to Ontario and experiences the same sort of epidemic outbreaks of diphtheria, measles, scarlet fever, etc., and the mortality appears much the same. I was fortunate in having as one of my personnel the one time Chief Statistician of the local board of health of Vladivostok. Mr. Jeppo was one of the leaders in the Felchars organization of Siberia, and was extremely well informed. For diseases such as diphtheria, scarlet fever, etc., the quarantine regulations were rigidly enforced. This no doubt explained the fact that outbreaks in no case exceeded those common to this country.

Typhoid fever, according to available statistics, was epidemic only during the fly season and did not reach the proportions one might expect in a country where so little precaution is taken as to sanitary conditions about common wells. The true explanation undoubtedly rests in the fact that there is a decided absence of a common distributing agent such as water or milk in this country. The outbreaks, therefore, were purely of a local nature. Cholera appears during the summer and is much more to be feared than typhoid. Infected food and water seemingly plays a large part in the transmission of cholera. One of the Russian railway officials, a very delightful fellow, Mr. Veldeman, attempted to persuade me from assuming charge of the Anti-Typhus Expedition. He described in some detail for my edification the disastrous Bubonic plague outbreak, which swept Manchuria in 19—, only a few years previous. He recited the fact that conditions became so frightful that at Harbin, unable to bury the dead, they conveyed the bodies to an island in the river. It is to be hoped that floods mercifully completed nature's task of dissolution.

The only great public utility of Siberia is the Trans-Siberian Railway, for the municipalities—many of which reach over the 200,000 population mark—are without municipal water supply or electric transportation, electric light being however common to almost all.

The Russian Government Health Organization, created only during recent years and sadly handicapped by the lack of comparative statistics and complete vital statistics, nevertheless, early became conscious of the strategic importance of localizing epidemic outbreaks through quarantine stations operated in conjunction with the railway and as part of their Immigration Service.

These immigration points, as they are called, are placed at all junctions of the feeders with main line of the Trans-Siberian Railway. To properly appreciate the importance of this step one but needs to reflect upon the fact that this railway was primarily projected to provide an outlet for Asia through Russia. Until the advent of the railway trade followed the century old caravan routes and the movement of the caravans was slow enough for all of our contagious diseases to manifest themselves en route and permit of such precautions as usage had recommended.

With the advent of the railway this natural isolation and quarantine was to be swept away. All honour therefore to those advanced workers who along with railway development projected immigration points where every precaution could be taken to prevent the introduction of some dreaded disease from an infected centre to a remote hamlet often without medical assistance whatsoever.

The immigration point at Chiliabinsk, which I had the opportunity of examining in some detail, was equipped to feed 10,000 persons per day, and had hospital accommodation for 1,500 beds, together with residences, etc., for the large personnel of doctors, nurses and attendants. The public bath house had accommodation for 2,000 per day, and the infected or quarantine bath house 800 per day, and this latter was equipped with the necessary steam and dry heat sterilizers for delousing the clothing and equipment of approximately 800 per day, calculated on the basis of an eight hour day. Electric light and running water was available in all parts of the area. Railway sidings were so arranged that passengers could retain their berths on the train held for an examination or quarantine, until they were either released or transferred under observation to a new unit.

During the early phases of the Great War the medical personnel of railway and immigration services was largely depleted of trained workers and this unfortunately was also true of a great deal of special railway sanitary equipment which was transferred to the army.

It was the disorganization of the railway and immigration service that precipitated the disastrous outbreak of typhus fever introduced by the returning prisoners of war from Germany in 1918, and which must continue to take terrific toll until the country is re-established on an economic basis and is able to readily manufacture and transport disinfecting apparatus, fuel, soap and sulphur.

In the latter part of February, 1919, there were no less than 7,000 known hospital cases between Chiliabinsk and Irkutsk. Previous epidemics showed the crest to be reached in March or early in April, with a partial decline during the summer. Unfortunately, this curve is only applicable to a civilian population, and when supplies are available; neither of these conditions held true in 1919, and the epidemic showed no signs of abatement by May of that year.

Unfortunately, my interest in typhus fever came to an abrupt climax in April, when twelve of our sanitars and I contracted the disease. The mortality for early treatment fortunately was extremely low, about 7 per cent., and I am pleased to say all of our sanitars recovered. I, myself, owe a debt of gratitude to my batman, Acting Sergt. Heaven, of Montreal, and to Miss Polhe, an American Red Cross nurse, who later took charge of the nursing staff of a 1,000 bed hospital under Dr. Newman. I was nursed on one of the small railway cars equipped for the medical service. It was very beautifully finished in mahogany and upholstered in leather and had in addition to my room with its six windows, a further compartment which Miss Polhe used, a kitchenette, and two bunks for the provodnik and cook. Later I had the pleasure of convalescing in the Canadian Hospital at Omsk and the additional pleasure of seeing Miss Polhe nurse Colonel Clarke, A.D.M.S., of the Canadian Expedition, back to life after a close call from typhus.

Admiral Kolchak I did not see, but I had the privilege of several interviews with the Minister of War, General Stapanoff, and with the chief sanitary officer and many of the officials of the railway department. Many of these officials were splendid, earnest men, only asking that their service might accomplish something for Russia. Almost without exception they, too, realized that with the chaotic condition of transportation and lack of supplies of even such essentials as fuel, effective health administration was impossible and at best one could only mitigate some of the unthinkable hardships of the hospitalized cases.

GANANOQUE.

February 21st, 1919.

In company with the Mayor and three members of the Water and Power Commission, I inspected the portion of the town which they wish to sewer and drain directly into the Gananoque river.

The Gananoque River runs practically through the centre of the town and discharges into the St. Lawrence River. A short distance above the mouth of the river there is a power dam and both sides of the river in the vicinity of this dam have been built up by manufacturers who use the power created by the dam. Immediately north of this industrial centre and on both sides of the river there exists districts which the town authorities wish to provide sewer accommodation and to drain directly into the Gananoque River. If the area were fully built up it would not accommodate more than three hundred people. At the present time it is only sparsely populated and judging from appearances it will be many years before there will be any further development.

In the absence of levels and other information it is impossible for me to say whether this district could be drained into the existing sewers. I have asked the Mayor to make arrangements to furnish me with the necessary information. If sewage from the district cannot be drained into the existing sewer system there remains only two ways for providing the necessary accommodation, one is by draining directly into the river as proposed by the Mayor, and the other by constructing an automatic pumping station. I would strongly recommend the latter.

Unfortunately the manufacturers discharge all their trade wastes and sewage directly into the Gananoque River and the sewage from the town is also discharged into the mouth of the Gananoque River.

As soon as the necessary information arrives I shall be able to give further report.

All of which is respectfully submitted.

W. R. Worthington,
Acting Provincial Sanitary Engineer.

September 27th, 1919.

Georgetown Water Supply.

Acting on instructions from the Chief Officer of Health, I inspected the present source of Georgetown water supply and proposed additions on September 8th.

The present supply is collected from a number of small springs, which originally were conducted from their sources to the reservoir in tile pipe. Sections of this pipe have since been removed and never been replaced. The reservoir was formed by constructing a concrete dam across a small ravine. To protect the collected spring from pollution by a small brook (really a surface drain), which ran down the bed of the ravine, a further dam was constructed at the head of the reservoir and the brook diverted into a ditch which carried it past the reservoir. Evidently the original designer of the system was dubious of the purity of the brook. Latterly, owing to severe water shortage, this brook has been turned into the reservoir to make up the deficiency, without any precaution being taken to protect the purity of the supply. In addition, the fence around the reservior area has been neglected and is in a poor condition. There is also unmistakable evidence of unwarranted trespass. To safeguard the present supply it is essential: (1) The tile pipe carrying the springs to the reservoir should be repaired; (2) a proper fence to prevent all trespass should be constructed, and (3) that the brook be diverted from the reservoir.

The present water supply is inadequate even using the brook, hence, it is necessary that it be augmented, either from further development of the present source, or by some new supply. The possibilities of the development of the existing system are laid down in a letter by Mr. Dallyn, Provincial Sanitary Engineer, to the Town Clerk at Georgetown, dated November 30th, 1916. Development along these lines should provide more than sufficient water if meters were installed on all the large consumers.

The Water Commissioner, of Georgetown, at the time of my visit, desired, however, not merely water enough for the present needs of the town but enough to allow for considerable expansion in the future. After looking over the various sources of water supply, I decided that there were only two practical methods of enhancing the supply: (1) The development of the springs rising on part of township lot No. 19, in the west end of the town as recommended by Mr. Chipman; (2) from wells. The springs rising on township lot 19 yield something over 300,000 gallons per day. This is more than the present supply. If these springs are utilized, surface drainage must be diverted and a large area must be fenced to keep out people and cattle. The development of these springs would prove quite costly, but it would materially increase the present supply. The south or subsidiary spring was highly polluted. If at any time it is included in the water supply great care must be exercised in eliminating all chances of pollution. The other possible source of supply would be the development of wells to the west and north of the town. Georgetown is built on clay which is underlaid with a gravel bed. There is a considerable flow of water through the gravel under a head of at some places several feet. Springs appear wherever the clay covering is fissured or thin, thus accounting for the springs on Lot 19. It would be quite possible to sink a well or a series of wells. If the springs on Lot 19 are developed and at any time it proves necessary to further augment the supply, wells could be sunk right on that property which could utilize the enormous reservoir of ground water that the gravel provides.

SAMPLES GEORGETOWN WATER SUPPLY EXAMINED SEPTEMBER 9TH, 1919.

Laboratory Number	Where Collected from	Bacteria grown in N. Agar + 10.0 Per cubic centimeter		Colon Bacilli					Chlorine in parts per Million
		at 18°-22° C. 48 hours	at 37°-40° C. 24 hours	0.1 cc.	1 cc.	5 cc.	25 cc.	50 cc.	
11,212	Main Spring and N. Spring, Lot 19................	too high	too high	......	....	....	+	.....	10
11,213	Jackson's Spring...........	"	"	......	....	....	+	.....	13
11,214	Willoughby's Spring........	"	200	......	....	....	+	.....	11
11,215	Price Pond.................	120	250	......	....	....	+	.....	4
11,216	Reservoir..................	too high	too high	......	....	+	.....	.....	6
11,217	Brook entering reservoir.....	"	"	......	....	....	+	.....	7
11,218	Subsidiary S. Spring, Lot 19.	"	"	......	+	....	.....	.....	8

The tabulated results of the bacterial examination of the samples from the different springs are appended. The pollution of the reservoir as shown, is undoubtedly due to trespassers and surface drainage. All the springs show certain pollution but this could be eliminated by proper protection, therefore, I recommend: (1) The protection of the present source as outlined in this report; (2) the development as laid down in Mr. Dallyn's letter of November 30th, 1916; (3) the installation of meters to prevent undue waste by large consumers and (4) the utilization of the main or north spring on Lot 19 if an augmented supply is still deemed necessary.

All of which is respectfully submitted.

A. V. DELAPORTE,
Chemist in Charge of the Experimental Station.

Toronto, November 30th, 1916.

Letter, F. A. Dallyn, re Georgetown Water Supply.

DEAR SIR,—The writer, in company with Dr. H. R. Nixon, Medical Officer of Health, some time ago went over the water supply and was asked to consider the proposal of taking water from the springs just outside of the town limits.

I visited the existing source of supply, the proposed development of springs within the town as well as the two lakes north of the present supply. I must frankly state that the information available with reference to the several projects was so incomplete that I have been unable to come to any conclusion in the matter.

The present reservoir is rather small for the needs of the town and no attempt has been made to develop the springs which undoubtedly exist in this vicinity.

I believe it would be wise for the town to spend some money in determining whether driven wells in the neighbourhood of the existing supply will not increase the flow materially, especially if they are pumped by low lift electrical pumps such as is the practice at Kitchener for instance. The pumps could be controlled automatically by the level of the water in the reservoir so that they would only operate during shortage of water or for that matter only operate seasonally. The reservoir should be enlarged if the springs yield a further supply.

The development of the existing system along these lines at an expenditure of about $10,000, would, I am sure, take care of the needs of your municipality for sometime and this is my recommendation.

There is no objection to the use of the water from the springs inside the town providing the surface drainage is diverted and a sufficient area fenced to keep the cattle back. Their development, I believe, would, however, be quite expensive and would entail an annual upkeep of a considerable amount. Money should be spent on the existing supply before going to these springs.

All of which is respectfully submitted.

Yours sincerely,

F. A. Dallyn,
Provincial Sanitary Engineer.

F. T. Heath, Esq.,
Town Clerk,
Georgetown, Ont.

April 28th, 1919.

Grimsby, "Village Inn."

Last Saturday afternoon I visited Grimsby and interviewed Dr. Alexander and Mr. Wray, and also made an inspection of the septic tank in connection with the Village Inn. The location of the system is not satisfactory, as during certain seasons of the year the ground over the field tile becomes flooded due to the overflowing of the creek which crosses the property. The effluent does not receive proper treatment under such circumstances.

It would be advisable to have a new system constructed farther north on higher ground. Mr. Wray stated that the proprietor was satisfied to proceed with the work immediately.

If the new tank is constructed and new system of field tile installed the sewage could be treated effectively. I suggested a size of septic tank but I find that Mr. Dallyn in his pamphlet on Sewage Disposal has covered this matter very thoroughly and I think it would be well to draw Mr. Wray's attention to page 11 for the details. This, then, would be in conformity with the general regulations of this Department. I would suggest that Mr. Wray forward information concerning the amount of field tile which he proposes to lay and also the number of guests and attendants which the hotel can accommodate.

The proprietor of the Village Inn is very anxious to open on May 1st, and as the present system is in fair working condition, I cannot see that there can be any objection to allowing them to open up, providing that Mr. Wray proceeds with the installation of the new system immediately. Mr. Wray could easily have this work completed before the rush season.

I promised Dr. Alexander that you would advise him immediately so that he might give the proprietor the necessary permission to open his premises on May 1st.

All of which is respectfully submitted.

W. R. WORTHINGTON,
Acting Provincial Sanitary Engineer.

June 17th, 1919.

KINCARDINE.

Last Saturday morning I visited Kincardine to make an inspection of part of the town which the mayor is anxious to have sewered in order to accommodate a number of residences. The desire of the mayor is to sewer one little section of the town and drain the same into a septic tank, allowing the effluent to discharge directly into the river. On Saturday there was very little flow of water in the river and in some places it was practically dry. During the summer months there is practically no flow and without dilution it would be inadvisable to permit the discharge of any untreated effluent into this river. I would strongly recommend against giving an approval for the installation of a small sewer system for a portion of the town. The whole town needs sewers and this should be considered in order to prevent any patch work. Some of the business men informed me that they are very anxious to have a complete sewer system for the town, but they feared opposition in the council.

Some years ago a comprehensive scheme for sewage was prepared but the by-law was defeated by the ratepayers principally owing to the fact unfortunately that they had not consulted the Provincial Board of Health.

It would be more advisable to have but one disposal works rather than three or four. The town is not large enough to warrant a sectional sewer system.

I also made an inspection of the water works system, according to your suggestion. At the present time they are using very little water from the Artesian wells. The main supply is secured through perforated tile pipes buried in the sand parallel to the shore. The water from Lake Huron filters into these pipes and discharges into a pumping well. The pump well is protected by an old, frame building, the floor of which forms the roof of the well. There are two or three trap doors through the floor and as they use this old building as a storehouse, dirt and filth can easily fall through these trap doors and through the holes in the floor into the well. Even though the water were received pure from the lake it would, in all probability, be contaminated through this source.

I spoke to the Waterworks Commissioner of this condition of affairs and advised him that he must remove all the articles that are stored in this building and lay a water-tight floor so as to prevent contamination. The well itself looks pretty dirty and I would suggest that a letter be written to the town authorities suggesting that the same be cleaned out and be protected from contamination. The building protecting the well should certainly not be open for common traffic.

Samples of water from the tap are being forwarded for analyses.

All of which is respectfully submitted.

W. R. Worthington,
Acting Provincial Sanitary Engineer.

July 29th, 1919.

Kincardine Water Supply.

Acting on instructions from the Chief Officer of Health of Ontario, I went to Kincardine on June 24th, to investigate the condition of the water supply of that town.

On May 30th, 1908, Dr. Bell, Provincial Medical Inspector, reporting on a typhoid epidemic, states of Kincardine that, "there are no public sewers, but four of the hotels, one livery stable and a pork factory have private sewage to the river or lake. Cesspools and closets are connected with these. Considering the nature of the soil and the slopes of the ground, all sewage and soakage must rapidly find its way to the lake either directly or via the river."

"The source of water supply is the lake, the pump house being on the shore about 400 yards north of the piers between which the river discharges, and at the foot of Durham Street. An intake pipe extends out about 600 or 700 feet, but is admittedly defective and broken in one or more places. A cribbed water gallery has been constructed in the sand about 30 feet from shore and into this the lake water percolates, then passes through a pipe into a cement tank or well a few feet further, from which it is pumped to a standpipe on Princess Street, three blocks east, and distributed by gravitation through the town. This public system is in very general use, but the supply is rather limited by the quantity filtering through the sand, and, therefore, the intake pipe is frequently directly drawn upon. The superintendent of the waterworks told me he had drawn directly from it for several months and from under the ice until the typhoid outbreak had become alarming, about a month ago. Now, he pumped only what percolated through the sand, but in case of fire or on resumption of lawn services, he would have to draw again directly from the lake. There cannot be a shadow of a doubt as to the pollution of this supply from the sewage, the bulk of which discharges into the lake either from the river 400 yards distant or between these points, and westerly or south-westerly winds prevailing, it is all carried directly to the locality of the intake. But worse still, a drain is permitted from a hotel and a couple of private houses, with cesspool and closet connections, to run down Durham Street for between two and three blocks covered, then open for a short distance on the street side, where the sewage spreads out and soaks into the sand about 100 yards from the water gallery, with a strong probability that it reaches it before the lake."

On March 1st, 1917, I reported on conditions in Kincardine almost identical with those described by Dr. Bell in 1908, except that the water is secured in tile pipe sunk in the sand along the shore line and that the drain on Durham Street complained of by Dr. Bell had been intercepted and carried along the shore to something over 100 yards south of the pump house. I reported that the water supply of Kincardine must be dangerously polluted periodically, and recommended chlorination as a temporary expedient. An order under Section 96 of the Public Health Act under date of May 8th, 1917, was issued by the Provincial Board of Health, ordering the installation of a chlorination apparatus to safeguard the water supply. This order has been entirely disregarded.

The present investigation fell naturally into several divisions, the determination of (1) the direction of lake currents, (2) the extent of the pollution of the Penetangore River and of the lake, (3) the possibility of ground water finding its way into the collecting tile, and (4) means of overcoming the present situation.

To establish the direction of lake currents two floats were placed in the water at a point midway between and about 10 feet beyond the pier. One float was five feet deep and the other ten feet. It was a clear day with a light breeze about four to five miles per hour from the north west. The floats moved slowly north, roughly paralleling the shore and moving at a rate of about 100 yards per hour, showing that any water from the river would pass over the intake pipe in about four hours, as the intake is, roughly, 400 yards from the mouth of the river. The mayor, Mr. Malcolm, told me that the current in the lake at this point was generally northerly and in times of storm the muddy current of the river could be observed going north past the pump house. Mr. Scougall, Town Clerk, Mr Welsh, ex-Water Commissioner, boatmen and pump house engineer all gave similar evidence. The gross pollution of the Penetangore River is established by the bacterial results appended. There are at least three sewers emptying into the river and numerous trickles which give every evidence of being sewage. Bottles containing samples of wastes discharged from the pork factory and dye plant sewers accompany the report. Bacteriological samples and conductivity tests and samples for mineral analyses were taken at the points shown on the accompanying blue print. The tabular results of the analyses are appended.

That the ground water from town finds its way into the collecting tile is easy of proof, although the actual presence of ground water in the pump well was impossible to detect, owing to the fact that an artesian well was also emptying into it. The town is situated on a ridge between Lake Huron and the Penetangore River. The site consists of coarse sand and gravel from three to ten feet in depth, underlaid with impervious clay. The height of land is, roughly, along Princess Street, and as the major portion of the town lies between Princess Street and the lake it follows that the majority of the town drainage finds its way to the lake. To again quote Dr. Bell, "all sewage and soakage must rapidly find its way to the lake either directly or via the river," therefore, as the collecting tiles are between the town and the lake, they must in due course intercept part of the drainage. Appended is a blue print showing the levels of the cross streets. This illustrates the point to a nicety. The situation is this: The collecting tile are placed in such a position that they cannot help but intercept a portion of the drainage from the town. They are so close to the lake that any pollution in the lake would not be removed by percolation through the coarse sand and gravel covering the tile. This is shown by the fact that the turbidity is not removed when the lake is rough.

LABORATORY FINDING, KINCARDINE WATER SUPPLY.

Sender's Number	Where Collected from	Bacteria grown in N. Agar + 10.0 Per cubic centimeter		Colon Bacilli						
		at 18°-22° C. 48 hours	at 37°-40° C. 24 hours	.001	.01	.1	1	5	25cc	50cc
1	....	140	100	—	—	—	—	+	+	+
2	....	2	2	—	—	—	—	—	—	—
3	....	4,000	2,000	—	+	+	+	+	+	+
3A	....	5,000	3,000	—	+	+	+	+	+	+
4A	....	3,000	2,000	+	+	+	+	+	+	+
4	....	40	7	....	....	....	—	—	—	+
5	....	40	3	....	....	....	—	—	—	—
6	....	180	Spread	....	....	....	—	—	—	—
7	....	3	1	....	....	....	—	—	—	—
9	....	2	0	....	....	....	—	—	—	—
10	....	0	0	....	....	....	—	—	—	—
11	....	0	0	....	....	....	—	—	—	—
12	....	5	0	....	....	....	—	—	—	—
13	....	0	3	....	....	....	—	—	—	—
14	....	2	0	....	....	....	—	—	—	—
15	....	2	1	....	....	....	—	—	—	—
16	....	0	1	....	....	....	—	—	—	—
17	....	20	1	....	....	....	—	—	—	—
18	....	2	1	....	....	....	—	—	—	—
19	....	0	0	....	....	....	—	—	—	—
20	....	0	0	....	....	....	—	—	—	—
21	....	0	0	....	....	....	—	—	—	—
22	....	3	10	....	....	....	+	+	+	+
23	....	500	100	....	....	....	+	+	+	+
24	....	0	0	....	....	....	—	—	—	—
25	....	0	0	....	....	....	—	—	—	—
26	....	0	0	....	....	....	—	—	—	—
27	Well on Saugeen Street......	80	9	....	....	....	—	—	—	—
28	Drain on sand from pump house................	3	2	....	....	....	—	+	+	+
29	Artesian well, 120 feet.......	2	0	....	....	....	—	—	—	—
30	Pump well................	80	7	....	....	....	—	—	—	—
31	LeGear's driven well........	2,000	200	....	....	....	—	+	+	+
32	Durham Street sewer........	3,000	2,000	....	....	—	+	+	+	+
33	10 ft. deep between piers.....	500	80	....	....	....	—	—	—	—
34	Golf Club..................	700	40	....	....	....	—	—	—	—
35	McFarlane's Well...........	1	0	....	....	....	—	—	—	+
36	Fraser's Well..............	50	3	....	....	....	—	—	—	+
37	Artesian No. 2..............	25	5	....	....	....	—	—	—	—
38	Nicoll's Well...............	40	3	....	....	....	—	—	—	—

There are three possible sources of water supply for Kincardine—artesian wells, Lake Huron, infiltration galleries along the shore of Lake Huron. At present there are artesian wells located near the pump house. One of these is about 120 feet deep and is very hard. The total solid content is 975 parts per million and it contains 49 parts per million of iron calculated as Fe_2O_3. This renders it decidedly unpalatable to a person accustomed to lake water. The well which empties into the pump well is just over 60 feet in depth and its water has a total solid content of 734 parts per million. This is a decidedly more palatable water than the other well, but does not give sufficient water to supply the town. More wells to this depth *might* give enough water of the same grade to supply the town. From a public health standpoint only, this would be quite satisfactory, but it would necessitate the manufacturers of the town securing the water supply for their factories elsewhere. This would not be advisable. The artesian wells are not satisfactory as a source of supply.

Kincardine is planning a system of sewers and sewage disposal. A disposal plant was to be located south of the harbour and between the Grand Trunk Railway and the lake. As at this point the current of the lake is generally northerly, the effluent from the sewage disposal plant would inevitably affect the existing water supply. To avoid this I would suggest that the waterworks pump house and power plant be removed from their present site and placed as far south of the harbour as possible, and that the sewage disposal plant be placed as far north of the harbour as possible instead of in the proposed site. In this way the pollution of the lake in the vicinity of the water intake would be avoided a greater part of the time. Filters are necessary to remove turbidity as well as to safeguard against any chance of pollution of the water supply.

In addition to the improvement of the raw water the relocation of the plant would effect some saving in the haulage of coal to the power house, and it would be quite simple to provide a siding from the G.T.R. and have the coal delivered directly to the plant.

The continuation of the present system of infiltration is inadvisable as it provides no safeguard to the supply, as at times not even the turbidity is removed. If the plant were removed far enough south of the harbour, infiltration might be permissible after research into the quantity and quality of the water obtained had been made and with certain safeguards as to sanitary conveniences, etc., in the neighbourhood, although the success of such a system is doubtful. I would recommend:

(1) That Kincardine immediately install chlorination apparatus as a temporary expedient to safeguard their water supply.

(2) That Kincardine proceed with securing plans and specifications for filters and provide for their installation forthwith.

(3) Locating the plant to the south of the town.

(4) Locating the proposed sewage disposal plant as far north of the town as expedient to prevent, as far as possible, any pollution of the raw water.

CHEMICAL ANALYSES OF KINCARDINE WATER, JULY, 1919.
P.P.M.

Water	Total Solids	Carbonaceous Matter	$Si0_2$	Fe_20_3 $-Al_20_3$	Ca	Mg	Chlorides	$S0_4$	Alkalinity (as$CaCo_3$)
Artesian 60 + ft.	734	142	5	11	134	19	57	316	180
Artesian 120 + ft.	975	197	7	49	139	19	80	402	183
Pump Well	278	87	3	7	52	8	21	110	115
River	153	53	2	43	28	4	6	81	92
Lake	132	31	1	45	28	4	5	150	83
Well on Saugeen Street	585	140	5	30	100	16	25	254	297

Considering the solution of the water situation of Kincardine from a householders' viewpoint apart from the health standpoint: To neutralize the hardness of the water from Lake Huron, estimating that 1/10 of the water pumped is used for washing purposes, 33.5 lbs. of soap a day are required, but if the water from the 60 ft. artesian well were used, 72.5 lbs. would be required, or in other words, 6,435 lbs. *more* soap would be used in a year to neutralize the hardness if the artesian well water were used than if the lake water were used. This would cost the householders about $650.00, or would pay the interest and retire a loan of $7,400 in 20 years. This would go a long way toward the installation of a new pumping plant. From the manufacturers' point of view no comment is necessary. One manufacturer told me that it cost him from $200 to $300 more per annum to treat this water for his boilers when artesian well water was used than when lake water was used.

CONDUCTIVITY READINGS.

No.	Location	Conduction	Temperature
1	River at Queen St.	250	20
2	River below abattoir drain	275	16
3	Abattoir drain	1,250	22
4	River below dye works effluent	325	16
5	Dye works effluent	800	22
6	River between piers	110	14
7	Lake outside sea-wall	95	14
8	In line from North end of sea-wall to pump house at approximately equal distances	92.5	13
9		92.5	13
10		92.5	13
11		100	13
12		105	13
13	Well on Saugeen Street	275	21.25
14	LeGear's driven well	200	23.5
15	Artesian 60 + feet	300	18.0
16	Artesian 120 + feet	400	18.5
17	Pump well	140	13
18	Durham Street sewer where it empties on shore	350	16.5

A. V. DE LAPORTE,

Chemist, Experimental Station.

October 31st, 1919.

LINDSAY SEWAGE AND SEWAGE DISPOSAL.

I have the honour to advise you that I visited the Town of Lindsay on October 10th to inquire into the question of the drainage and sewage disposal for the south ward section of the town.

At the present time five sewer outlets drain into the Scugog River. Gross pollution is apparent in the vicinity of the outlets and some putrefaction takes place in the stream below the main outlet owing to a deposit of sewage sludge. Sewage disposal should be seriously considered before very long by the town. After examining the situation I am satisfied it will be more economical to construct three disposal plants than to operate several pumping stations to force the sewage to one plant at any of the available sites. If sewage disposal is carried on at three plants the logical system to adopt would be the activated sludge system.

The use of the stream requires an effluent reasonably free from harmful bacteria. The activated sludge treatment removes about 94 per cent. of the total bacteria and accomplishes this without the further use of chemicals. The process requires a minimum of supervision at the sewage disposal works. The machinery required for compressing air in the case of Lindsay might be located at the waterworks pumping station and it could be looked after without employing additional attendants. Especially as the annual retirement of the capital charges for air distribution mains would be considerably less than the annual cost of supervision at three points and three installations of compressing machinery.

The immediate problem is the outlet for the south ward sewerage system. My suggestion is that a concrete structure suitable for the activated sludge sewage disposal system be constructed on a small lot, owned by the town, opposite the locks, and that provision be made for diverting the drainage from the two existing outlets which are just to the north of this point. From the proposed works a new outlet could then be constructed capable of discharging the combined flow some little distance down the stream past the shallows. The south ward system during construction could drain to the tank and be subjected to sedimentation until such time as the more extensive treatment by the activated sludge process is required of the town.

I do not see that the suggested concrete structures would impose an unreasonable burden on the municipality and interfere with the south ward system being proceeded with at once. The cost for disposal works I think should be assessed against the town as a whole and the south ward system proceeded with on the basis of local improvement.

All of which is respectfully submitted.

F. A. Dallyn,
Provincial Sanitary Engineer.

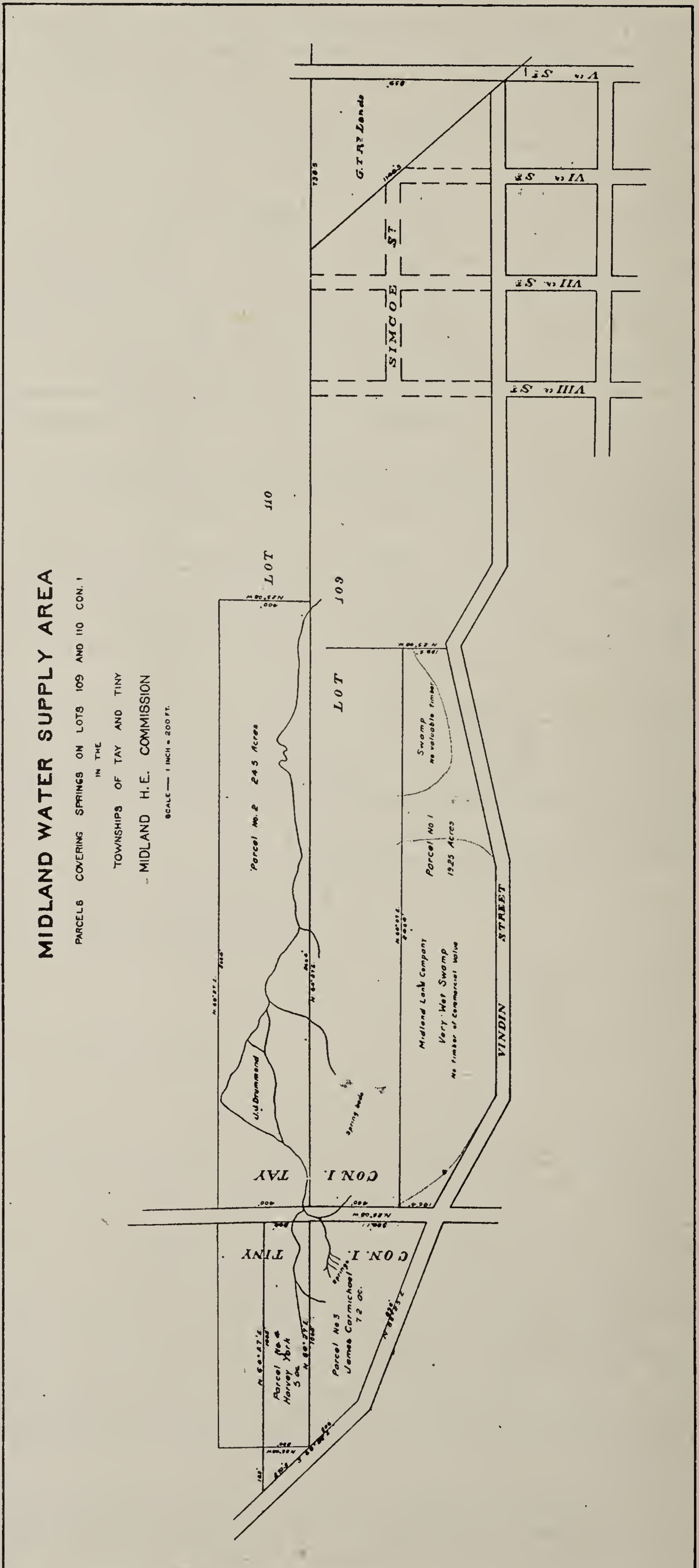
Toronto, October 23rd, 1919.

Midland Water Supply.

Acting on instructions from the Chief Officer of Health of Ontario, I inspected the source of Midland's water supply, and the proposed extensions on September 11th.

The source of the Midland water supply is a spring creek which has been dammed back to give it a slight head over two small reservoirs. The channels connecting to the reservoirs have been filled with charcoal and gravel to act as a filter. This bed of charcoal has been in place for about fifteen years. The two reservoirs are located near where Simcoe Street crosses the Grand Trunk Railway lands. The reservoirs feed by gravity through an 18 in. glazed tile pipe to the pump well. This pipe line runs for part of its length through the Grand Trunk Railway lands previously mentioned.

To augment the present supply it is proposed to purchase the adjacent lands, and to develop the springs rising thereon. A considerable quantity of water would be obtained that is certain, but unfortunately, there is no data on the subject and



SANITARY ENGINEERING DIVISION

THE PROVINCIAL BOARD OF HEALTH OF ONTARIO the probable increase cannot be estimated. It is, therefore, impossible to advise as to whether the increase in the supply would warrant the town going ahead with the scheme without first securing more data.

The present source of supply is not adequately safeguarded. The creek, as shown by the accompanying blueprints, is not protected for the greater part of its length. No effort has been made to prevent pollution from surface drainage, and the frequency of the trespassing in the reservoir area is testified by numerous paths. In one place, the boundary fence had been cut in order to permit cattle to get at the succulent pasture in the reservoir area. There is need of protection for the springs and the creek which form the source of supply. The main springs rise in the James Carmichael lot within fifty yards and below a house, nearby is an outside privy and barn. The springs flow through the York property and cross Concession No. 1, of Tay and part of Lot 110, before entering the town property. A number of cattle pasture on both the York property and lot 110; in addition there seems to be considerable chance of fæcal pollution from trespassers.

Taking the foregoing facts into consideration, it is advisable for the town: (1) To acquire the Carmichael property, and all of the York property, and that portion of Lot 110 which lies in the drainage area, the Grand Trunk Railway lot, and close the Concession Road No. 1 of Tay and Tiny north of Vinden Street, as this section is used only as pasture; (2) to provide drains to intercept drainage from the property south of Vinden Street and to convey this past the reservoir area; (3) to initiate a vigorous policy against trespassing in the reservoir area on any pretext whatsoever; (4) to proceed to investigate the possibility of further development of the springs and to ascertain whether it is possible to secure additional water in the reservoir area from wells in order to supplement the spring supply when necessary.

A. V. DeLaporte,
Chemist in Charge of the Experimental Station.

December 10th, 1919.

WELLAND AND NIAGARA DISTRICT WATER SUPPLIES.

The efforts of the Field Laboratory which has been carrying on investigations of the Welland Canal Water Supplies, headquarters at Welland, reveals conditions which are most menacing to the whole Province and particularly to the industrial area rapidly developing in the Counties of Welland and Lincoln. I may say that without exception every municipality is labouring under the disadvantage of a grossly polluted source of water supply, and although emergency apparatus has been installed in all of these municipalities, with the exception of one, its use, according to the reports of our laboratory, is not securing a satisfactory measure of protection owing to the varying conditions of pollution and to the absence of unremitting supervision.

For some years past various recommendations have been made to the several municipalities for the purpose of improving their water supplies, but unfortunately, the plans of the Department of Railways and Canals with reference to canal development were the governing factor and these have been altered from time to time so that no improvement of a permanent character has as yet been undertaken.

In 1914, the Minister of Railways and Canals confirmed an understanding with the towns of St. Catharines, Thorold, Merritton and Welland, regarding the supply of water for domestic use, the agreement being that the Dominion Government would construct a concrete conduit from Lake Erie to the aforenamed municipalities, they to contribute an annual sum for thirty years. The work of construction of this conduit has been deferred from time to time and even to-day there is no definite understanding as to when it will be constructed. In the meantime, the conditions under which the municipalities are labouring become worse and worse. The fact is further emphasized by the number of deaths which are recorded from typhoid fever for this portion of the Province where 132 deaths occurred in the years 1912-1918, inclusive. There is every assurance that as the work progresses on the canal construction, the typhoid toll will by no means be on the decline. It is only owing to the efforts of the Provincial Board of Health and its laboratories that the deaths mentioned were not greatly augmented, for it has been through the Board's efforts that the various chlorination plants have been established and that suggestions as to dosage have been advanced from time to time so that their operation might control the situation as far as emergency measures may do so.

In addition to the cities and towns with local improvements there are a number of small settlements and industrial areas, not included in the boundaries of the several towns, which secure water directly from the canal both for industrial and domestic purposes. Our investigations show that with respect to these conditions are even more deplorable than for the cities and towns. Here, again, emergency apparatus has been installed but lacking proper supervision its use does not afford the protection the situation demands. Efforts which have been made to secure water by shallow and deep wells along the route of the canal have not met with success, as shown by the reports of our laboratory. Almost without exception, the water secured through these wells is heavily polluted by surface seepage, and we also find that both the quality and quantity of water from such sources is most unsatisfactory.

The City of Niagara Falls, which is situated some 6-8 miles to the east of the canal, has had for a number of years, a polluted and unsatisfactory source of water supply. At the present moment their supply is taken from a temporary structure erected by the Hydro-Electric Power Commission, and at a very early date the municipality is faced with considerable expenditure to provide for a change of location of their pumping station, the establishment of a water purification plant and the laying of a considerable amount of large-sized distribution main. The Township of Stamford, adjacent to Niagara Falls, and the settlement at Chippawa, St. David's and Queenston, are without any municipal water supply.

A central water supply and purification system under the control of a Commission, appears to be the only satisfactory solution of the difficulties which are confronting the municipalities of the Welland and Niagara districts. Such Commission might be established by legislation and have authority to issue debentures of bonds with the security of the several municipalities; and to levy annually upon the municipalities their share of charges for interest and operating expenses according to the use of water and population. Should the Dominion Government see fit to transfer to a Commission an amount commensurate with the expenditure involved in the concrete pipe line scheme or should they agree to an annual grant sufficient to cover the difference between income and liability under the proposed arrangement until such time as the scheme became self-supporting there would

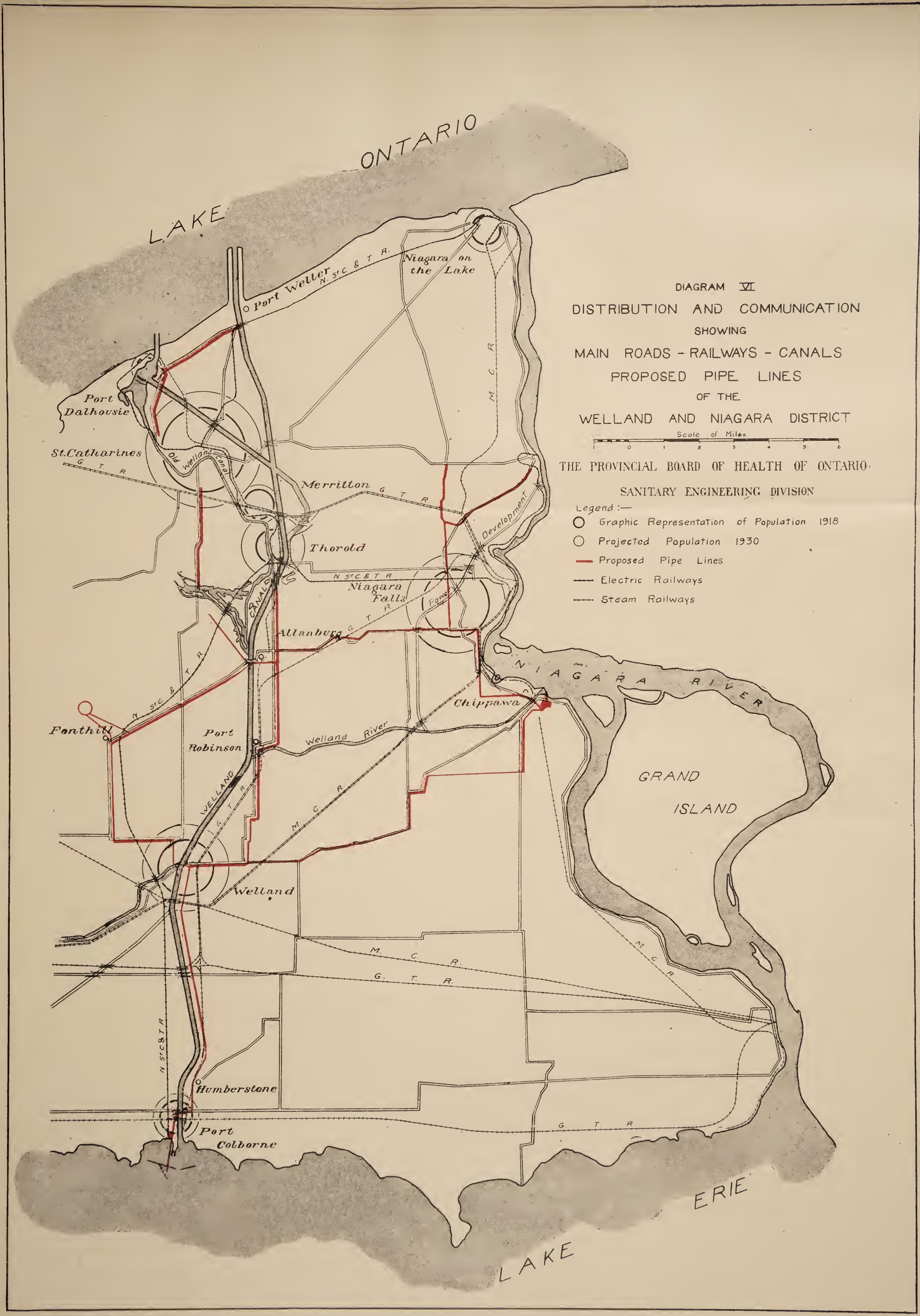


DIAGRAM VI

DISTRIBUTION AND COMMUNICATION
SHOWING
MAIN ROADS - RAILWAYS - CANALS
PROPOSED PIPE LINES
OF THE
WELLAND AND NIAGARA DISTRICT

THE PROVINCIAL BOARD OF HEALTH OF ONTARIO.

SANITARY ENGINEERING DIVISION

be no difficulty in financing a joint water supply and purification system and in providing for the needs of the municipalities. The very great advantage to the district in a co-operative effort of this sort is that the industrial development which is taking place and which is bound to increase very rapidly with the completion of the Hydro-Electric project will be suitably planned for and its needs met as development proceeds. Such a programme would be of particular advantage to the area adjacent to Niagara Falls and would, at the same time provide for the needs of the industrial area which is rapidly extending along the Welland Canal and which will be more rapidly extended should the electrification of the Grand Trunk line, Port Dalhousie to Port Colborne, be consummated in the near future.

It does not appear necessary at this time to indicate in great detail the most advantageous plan for this water supply, although it can do no harm to recite that a water purification plant, established at Chippawa with a force main carried along the power canal thence along Lundy's Lane to the Welland Canal where it would branch north and south for the canal zone, with a branch line projected through Stamford, taking care of Stamford, St. David's and Queenston, is thoroughly practicable and can be constructed at a cost in the neighbourhood of $4,000,000. In considering this expense, it might be well to refer to the fact that the Department of Railways and Canals, under their agreement, are obligated to a capital expenditure which I believe to be considerably in excess of $2,000,000, that the City of Niagara Falls for its own needs requires improvements which may be represented by an expenditure within the next four or five years in excess of three-quarters of a million dollars for waterworks and to build the necessary water purification plants to protect the municipalities along the Welland Canal if the concrete pipe line were proceeded with would cost in the neighbourhood of one-half million dollars.

I should be glad if you will consider this in the nature of a progress report with reference to the Welland and Niagara districts. The immediate need before any scheme can be elaborated at length is for the municipality to get together and discuss the metropolitan district idea and to determine (1) whether the Government at Ottawa, in consideration of its relief from the obligations as to the municipalities on the Welland Canal, would contribute to the support of an alternative scheme; (2) to procure the necessary legislation to enable the municipalities to co-operate in forming a Commission for the purpose of investigating and proceeding with the scheme. The whole project should be discussed very frankly by representatives of the municipalities and the merits or demerits of the proposed scheme pointed out.

F. A. Dallyn,
Provincial Sanitary Engineer.

Toronto, Dec. 10th, 1919.

CERTIFICATES ISSUED *Re* SEWER EXTENSIONS, DISPOSAL WORKS AND NEW SEWERS IN 1919.

Municipality	No. of Certificates	Extensions	Disposal
Arnprior	2	$1,426 54	
Barrie	3	5,041 20	
Belleville	9	64,182 05	
Brampton	4	3,617 38	$17,000 00
Brockville	1	46 26	
Burlington	1	21,290 50	
Chatham	1	2,285 55	
Cornwall	1	6,125 00	
Essex Border	1		15,504 00
Ford City	1	22,482 40	
Fort Frances	1	6,990 60	
Fort William	2	3,053 09	
Galt	2	4,114 49	
Goderich	5	11,529 35	
Hamilton	10	655,893 17	
Kingston	3	11,780 78	
Kitchener	1	15,625 01	
Lindsay	2	5,499 30	
London	7	114,101 96	
Military Hospital	1		14,917 75
Mowat Sanitorium	1		6,532 00
Newmarket	3	14,406 60	110,000 00
New Toronto	2	19,731 14	
Niagara Falls	4	470,304 33	
North Bay	1	25,640 75	
Oshawa	4	59,422 25	
Ottawa	29	65,667 58	
Owen Sound	1	1,210 00	
Parry Sound	1	3,100 00	
Pembroke	1	18,644 64	
Perth	2	2,387 58	
Peterborough	2	16,205 21	
Port Hope	1	1,085 00	
Preston	2	4,757 87	
Renfrew	4	9,961 65	
St. Catharines	7	102,235 46	
Sandwich	8	43,488 54	
Sandwich, East	1	4,193 54	
Sarnia	7	29,934 01	
Sault Ste. Marie	4	58,730 16	
Smith's Falls	5	10,460 00	
Stratford	1	1,271 07	
Sudbury	1	1,341 36	
Timmins	2	43,030 40	21,600 00
Toronto	3	517,540 80	
Walkerville	2	5,008 21	
Waterloo	1	2,596 99	
Welland	4	13,487 55	
Woodstock	2	43,312 00	56,688 00
	164	$2,544,239 32	$242,241 75

SUMMARY.

Extensions	$2,544,239 32
Disposal works	242,241 75
	$2,786,481 07

CERTIFICATES ISSUED *Re* WATER MAINS, PURIFICATION, ETC., FOR THE YEAR 1919.

Municipality	No. of Certificates	Extensions	Purification	New
Acton	1			$72,000 00
Alexandria	2	$3,065 89		
Arnprior	1	1,598 75		
Cochrane	1	5,205 48		
Crowland Twp.	1	18,500 00		
Depot Harbour	1		2,831 90	
Eastview	1			71,000 00
Fergus	1			8,206 91
Forest	1			74,000 00
Grantham Twp.	1	8,884 00		
Guelph	4			140,000 00
Hamilton	5	11,963 38		
Hespeler	1	8,143 27		
Huntsville	1	3,000 00		
Listowel	1	5,000 00		
Massey	1	1,990 00		
Midland	1	2,070 00		
Milverton	1			32,000 00
Mitchell	1			12,000 00
New Liskeard	1	1,553 70		
New Toronto	3	66,316 24		
Niagara Falls	1	6,797 00		
Niagara-on-the-Lake	1			8,000 00
North Bay	2	8,200 00		15,960 00
Oakville	1	30,000 00		
Oshawa	2	24,777 40		
Ottawa	0			
Owen Sound	1		7,860 00	
Pembroke	2	6,503 35		42,000 00
Peterborough	1	6,044 58		
Picton	1	1,000 00		
Renfrew	2	17,502 95		
Ridgetown	1	3,000 00		
Rockland	1		14,500 00	
St. Catharines	1	13,606 22		
Sandwich	4	24,248 76		
Sandwich, East	3	29,124 46		
Sault Ste. Marie	1			44,000 00
Seaforth	1	71,500 00		
Simcoe	1	6,000 00		
Smith's Falls	4	18,715 50		
Sudbury	1	165 28		
Timmins	1	59,291 40		
Toronto	12	858,372 07		
Weston	2	15,569 37		
Windsor	1	50,000 00		
York Twp.	13	790,149 60		
	92	$2,177,858 65	$25,191 90	$519,166 91

SUMMARY.

Extensions	$2,177,858 65
Purification	25,191 90
New	519,166 91
	$2,722,217 46

Report of Sanitary Inspector

I have the honour to submit for your consideration my third annual report covering the year 1919, as your Inspector.

This has been an extremely busy year for Public Health Officials; smallpox being epidemic in almost every section of the Province. The control of this as well as of several other infectious diseases of which we have had many small outbreaks, has to a large extent interfered with our routine work, and has prevented to some extent the taking up of such problems as the milk supply, scavenging, and other municipal problems, not to speak of seriously curtailing the inspection of lumbering camps, mines, etc. However, as the care of communicable diseases must always have the first call on our time, the discrepancy in the routine inspections is only to be regretted.

MILEAGE TRAVELLED WITH EXPENSE TO BOARD.

During the year I have travelled 17,698 miles at a total expense to the Department of $782.45, including railroad transportation where no passes are provided.

LUMBERING STATISTICS, UNORGANIZED TERRITORY.

The several Crown Timber Agents who report to us at least once during the season, advise that during the 1919-20 lumbering year there were 144 companies carrying on operations (it should here be noted the statistics covering the lumbering season extend from say October 1st, 1919, until March 31st, 1920. All other matters dealt with in my report cover 1919 only).

These companies we find on enquiry, and by referring to the reports of the various contracting physicians, as well as from other sources, give us a total of approximately 528 camps, and give employment to something like 22,447 men. Of the total, 146 concerns have contracted with a physician and have answered the questions to be found on page 27 of the regulations which govern this class of work. The information received, of course, has left much to be desired, nevertheless, there is a marked improvement in the value of this information year by year.

In connection with the monthly reporting of inspections made by the contracting physician and required by the regulations, I find to date a total of 230 such reports have been made. Most of these, however, are largely made up by 13 doctors out of our total of 59 engaged in this work. It may be readily seen from this that there are a large number who, aside from submitting the initial report which accompanies the copy of their agreement, promptly forget this very important matter for the balance of the season.

CAMP STATISTICS.

The number of camp inspections made by me during the year was 81 as compared with 84 for 1918.

The camps visited and inspected are situated at such places as: Smooth Rock Falls, Iroquois Falls, Chapleau, Timmins, Boice Lake, Shabagna, Flanders-Osaquan, Cameron Falls, and Minaki District.

Re Camps of Abitibi Power & Paper Co., Iroquois Falls.

In endeavouring to follow up the fortunes of this company in their efforts to bring about reforms in the camps, of which they have the greatest number of any company who operate in Ontario, I beg to offer the following history, it being partly my purpose to show how almost impossible it is to reach the desired result by a continuation of our present methods.

My first inspection during 1919 took place and began January 16th, and while former examination had not been encouraging this inspection brought to light the serious fact that instead of finding an improvement, the 165 camps or more correctly speaking, the 40 visited, were in a much more unsanitary condition than at any time previous. (In order to understand the points to which we are objecting let me enumerate a few). The location or camp site in 80 per cent. of those visited was within say, 50 feet from the river, and was polluting the water. The floors of many were of rough poles, instead of boards. They were poorly lighted and had no ventilation. No closets were provided, the inmates defecating wherever a little privacy could be found. All this polluting matter deposited on the ground surface, owing to the proximity of camps to the river, grossly contaminated the Abitibi River, the water supply for over 3,000 people, and causing a serious typhoid epidemic two years previously.

These findings resulted in Police Court information being laid against the Company on 38 charges, it being our hope that as our educational policy had failed the support of the courts should be enlisted. A test case was made and the company found guilty of wilful neglect to obey the orders of your officials, the maximum penalty being imposed, namely: $500. The case was then appealed to the Supreme Court of Ontario where the matter still rests without decision and without this the other cases cannot be heard. Meanwhile, for lack of this decision, the law cannot very well be enforced. My January inspection of this year discloses the fact that the inmates of this camp still live in unsanitary surroundings and while in some cases locations have been improved, there are still many without closets, and with the buildings poorly constructed.

Conclusions.

There is, to my mind, no solution to all this in a continuation of the present system without changing the regulations. These small jobber shacks, many of which are not fit for habitation by adults, aside from the fact that women and children are housed therein, must cease to exist. There is no necessity for their existence even on economic grounds. If the present regulations are to remain unchanged, then, we must expect better supervision by the Company's Sanitary Official and, coupled with this, we must try to standardize these camp buildings. I feel sure this may be done with a reasonable amount of success. I have seen a number of small camps built to house fifteen or twenty men which were all the regulations demand. These I find, even considering the high cost of labour and material, can be constructed at from $1,200 to $1,400. If it were known throughout the lumbering world that these standard camps must be built, and the proper amount of publicity were given to the matter, this change would be accepted in the same way as many others and would banish forever these hovels.

I also feel that much good could be accomplished if, in connection with our Moving Picture Exhibit, we could show the public a picture of a very good up-to-date camp, and as a contrast, a very poor one. This could be made a most instructive picture and could show the cutting of the trees, together with the interior and exterior of the several buildings. In fact, the picture could be named: *A Day in the Life of our Lumbermen* typifying a *good* and a *bad* camp. I am sure we are all agreed that propaganda and publicity play a great part in the advance of Public Health Work, therefore, I feel that as seven months of each year are spent in these camps by *twenty-five or thirty thousand men*, we should do all in our power to make these temporary homes at least *bearable*. An effort, then, should be made to add two such films to the collection now used by the Board.

With the appointment of Jas. Taylor, as Sanitary Inspector, which took place in October, we believe the number of inspections may be almost doubled. This will, however, leave much to be done. This year then, should see the appointment of another inspector to carry on this class of work in Western Ontario or to be moved there after having been broken in to the work. Let it here be noted, I believe that considerable coaching and demonstrating is necessary, no matter how efficient the Municipal Inspector may be before starting him out upon this work.

COMMUNICABLE DISEASES.

Outbreaks of Disease occurred at the following places and required my attention.

SMALLPOX.

	Cases.
Biscotasing	10
Sturgeon Falls	8
Cache Bay	5
Field (two outbreaks)	16
Timmins	2
Iroquois Falls	1
Sundridge	1
Krugerdorf	4
River Valley	11
Total	58

MEASLES.

	Cases.
Smoky Falls	5
Sturgeon Falls	Unknown
Halfred	10
Total	15

It may be noted by these smallpox statistics that while I dealt with nine outbreaks, none assumed alarming proportions. Let it not be supposed, however, that these were always easily controlled. Hundreds of contacts required to be held and vaccinated requiring considerable time spent on each outbreak. The disease was mild although several very typical cases came under my notice when the patients were quite sick.

In connection with communicable diseases as applied to the unorganized territory let me offer my opinion. It may be readily seen by reference to the Public Health Act that the whole Act up to Section 116 has been drafted with a view to caring for the organized municipalities, and that no mention is made of the unorganized save in Sections from 117 to 124, and these, be it noted, mainly make provision that the Board may make regulations governing any branch of Public Health Work. Under this authority, regulations have been drafted to which all employers of labour must conform, but no provision seems to have been made for the reporting of communicable diseases by settlers, of which there are legions, or by those living in the hosts of small villages in which no magistrate, registrar or physician resides. I very often feel that I would like to make an example of some one for not reporting early cases and thereby preventing epidemics from reaching alarming proportions, but in thinking over the cases I am confronted with this thought, "to whom shall they report?" Very often they know of no one outside of their own circle and certainly know nothing of the Secretary of the Provincial Board of Health, the proper person to report to, and while one might charge that this should have been done the feeling remains that thousands are entirely ignorant of such procedure. Knowing this to be true I have never taken action for the failure to report in such circumstances, although at times I have been tempted.

I am sure, however, this matter should be given some thought and a plan adopted by which these early cases would come to our knowledge at once.

PROSECUTIONS, 1919.

During the year we were compelled to take police court action against the following companies *re* non-compliance with our regulations:

	Fine.
March—Abitibi Power & Paper Co.	$500 00
April —Conger Lumber Company	5 00
July —J. J. McKeown	5 00
" —Chas. Cox	10 00
" —Ray Bell (Estate)	5 00
" —Bawlf Cartage Company	25 00
Total	$550 00

Added to the foregoing, I visited, sometimes by invitation and at other times in connection with our routine work, the following places: Haileybury, Timmins, Cochrane, Parry Sound, Cobalt, Capreol, Sudbury, Sturgeon Falls, Fort William, Port Arthur, Dryden, Kenora, Nipigon, Cameron Falls, Minaki, Sioux Lookout, Verner, Chapleau, Flanders, and Fort Frances. Many of these I visited twice and some three times. I also spent June in visiting the summer camps in the western part of the Province.

In conclusion, I wish to say a great deal of our statistics and history in dealing with the lumbering industry is due to Dr. R. W. Bell, whose knowledge of camps and the unorganized territory generally, I have found of very great assistance, and whose records keep us up to date with developments. It is also a pleasure to know that in any reforms which we may desire to institute we are ably assisted by our chief, Dr. McCullough, and the Board.

All of which is respectfully submitted.

ALEX. R. WHITE,
Provincial Sanitary Inspector.

North Bay, February, 1920.

Laboratory Reports for the Year 1919

Laboratories of the Provincial Board of Health, Toronto

Branch Laboratories at Kingston

Branch Laboratories at London (Institute of Public Health)

REPORT OF THE LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH, 5 QUEEN'S PARK, TORONTO

To the Chairman and Members of the Provincial Board of Health:

I have the honour to submit herewith a tabulated statement of the work performed in the laboratories during the year 1919. Special mention may be made of the increase in practically all departments of the work at the main laboratories in addition to the development and extension of the laboratory service at the several branches. This is shown by the following table summarizing the number and nature of specimens examined in the years 1911, 1918 and 1919.

	1911			1918			1919		
Diphtheria (Swabs)			1,068			2,758			4,458
Release from Quarantine		173			970			2,005	
Positive	91			352			571		
Negative	82			618			1,434		
Diagnosis		895			1,788			2,453	
Positive	226			399			536		
Negative	669			1,389			1,917		
Tuberculosis (Sputum)			1,650			2,091			2,179
Positive	402			431			407		
Negative	1,248			1,660			1,772		
Typhoid (Blood)			749			820			782
Positive	70			178			87		
Negative	679			642			695		
Syphilis—									
Colloidal Gold Reaction						29			8
Wasserman Reaction						3,846			6,659
Very Strongly Positive				653			1,129		
Strongly Positive				140			174		
Positive				237			444		
Negative				2,816			4,912		
Treponema Pallida						39			37
Positive				8			11		
Negative				31			26		
Gonorrhea						624			973
Positive				347			242		
Negative				277			731		
Rabies (Brains of Animals)			70			35			23
Negri bodies present				6			4		
Negri bodies absent				29			19		
Milk			168			76			150
Water			1,718			2,213			2,311
Bacteriological	1,668			2,200			2,271		
Chemical	50			13			40		
Liquor (for License Department)			241			594			595
Miscellaneous Specimens (including Coal for Public Institutions)			86			333			319
			5,750			13,458			18,494

A decline is noted in Rabies, both in the number of specimens examined and in the number of Pasteur treatments.

The work in venereal diseases is now well under way, as shown by the great increase in number of specimens examined particularly in those submitted for the Wassermann test.

H. M. LANCASTER,
Provincial Analyst in Charge of Laboratories.

REPORT FROM LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH

Municipalities	Diphtheritic Swabs.				Tuberculous Sputa		Typhoid Bloods.		Syphilis						
	Release		Diagnosis							Wassermann Reaction				Treponema Pallida.	
	+	—	+	—	+	—	+	—	Colloidal Gold Reaction	Very Strongly Positive	Strongly Positive	+	—	+	—
Algoma—															
Blind River	....	....	....	....	....	2	....	....	....	....	....	....	1	....	....
Bruce Mines	....	....	....	1	....	3	....	3	....	....	....	....	....	....	....
Cutler	....	....	....	2	....	5	....	1	....	....	....	....	....	....	....
Foleyet	....	....	....	....	....	....	....	2	....	1	....	....	3	....	....
Goudreau Mines	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Hearst	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....
Hornepayne	....	....	....	....	....	1	....	....	....	1	....	3	1	....	....
Lachwood	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Levack	....	....	....	1	....	1	....	....	....	....	....	....	....	....	....
Magpie Mines	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Richard's Landing	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....
Sault Ste Marie	1	1	3	9	8	28	....	6	....	1	....	....	1	....	....
Steelton West	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Thessalon	....	....	....	....	....	1	....	1	....	....	....	....	....	....	....
Brant—															
Brantford	8	7	5	12	15	48	....	14	....	15	6	8	60	....	....
Burford	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
Harley	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
Middleport	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Ohsweken	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....
Paris	....	4	....	1	1	4	1	1	....	2	1	....	9	....	....
St. George	....	2	1	3	....	....	....	....	....	3	....	....	7	....	....
Scotland	....	....	1	....	1	1	....	....	....	....	....	....	....	....	....
Bruce—															
Cape Croker	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Cargill	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Chesley	9	24	12	9	1	7	....	3	....	....	....	....	....	....	....
Elmwood	1	....	1	....	....	1	....	....	....	....	....	....	....	....	....
Hepworth	....	....	....	....	3	2	....	1	....	....	....	....	....	....	....
Kincardine	....	....	....	2	....	1	....	2	....	....	....	....	....	....	....
Lucknow	....	....	....	....	....	4	....	....	....	....	....	....	....	....	....
Mildmay	....	....	....	....	....	5	....	4	....	....	....	....	....	....	....
Paisley	....	....	....	....	....	2	....	2	....	....	....	....	....	....	....
Port Elgin	1	1	1	9	3	25	1	11	....	....	....	....	....	....	....
Ripley	....	....	....	1	1	1	....	....	....	....	....	....	....	....	....
Tara	....	....	....	1	....	1	....	....	....	....	....	....	....	....	....
Tiverton	....	....	....	2	....	1	....	2	....	....	....	....	....	....	....
Walkerton	....	....	....	2	5	22	....	2	....	....	....	....	....	....	....
Wiarton	....	....	1	5	9	5	....	....	....	....	....	....	1	....	....
Carleton—															
Ashton	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....
Carp	....	1	....	1	....	2	....	....	....	....	....	....	1	....	....
Kars	....	....	....	2	1	....	....	....	....	....	....	....	....	....	....
Manotick	....	....	....	2	....	3	....	....	....	....	....	....	....	....	....
Metcalfe	....	....	2	....	....	6	....	....	....	....	....	....	....	....	....
North Gower	....	....	....	....	1	1	....	1	....	....	....	....	....	....	....
Ottawa	1	....	....	....	2	15	1	14	1	156	15	62	562	....	....
Westboro	....	....	....	....	....	....	....	....	....	....	....	....	3	....	....
Dufferin—															
Grand Valley	....	....	....	....	1	....	....	1	....	....	....	....	....	....	....
Orangeville	....	....	....	4	2	7	....	4	....	....	....	....	....	....	....
Shelburne	....	1	2	4	....	....	....	1	....	....	....	....	....	....	....
Dundas—															
Iroquois	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Morrisburg	....	1	....	1	2	21	1	5	....	3	1	....	6	....	1

OF ONTARIO AT TORONTO FOR THE YEAR 1920.—SPECIMENS EXAMINED

Gonorrhea		Rabies Diagnosis				Milk											Waters		Liquors for License Department	Miscellaneous Specimens	Total for Year
		Animal	Negri Bodies		Animal Inoculations	Food Content		Preservatives		Bacteriological					Extraneous Matter	Number of Milk Samples	Chemical	Bacterial			
+	—		+	—		Fats	Total Solids	+	—	Tubercle Bac		Pus Cells		Count							
										+	—	+	—								
																		1			
1																			2		
	3																	3			
																		17			
																	1	6			
																		7			
														2				2			
1																					
	3																		16		
	1																				
7	25	4 d'gs	2	2													1	22	1	2	
																		1			
																		1			
1	1																	1			
																		1			
	1																				
1																		35			
																		1			
																	6	1			
																		7		1	
																		2			
																		3		1	
	4																	1	9		
																			16		
																		24			
																			1		
		dog		1																1	
																		4			
	3																	1	1		

REPORT FROM LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH OF

Municipalities	Diphtheritic Swabs.				Tuberculous Sputa		Typhoid Bloods.		Syphilis						
	Release		Diagnosis							Wassermann Reaction				Treponema Pallida.	
	+	—	+	—	+	—	+	—	Colloidal Gold Reaction	Very Strongly Positive	Strongly Positive	+	—	+	—
Durham—															
Bethany	....	....	....	2	....	5	1	5	....	....	....	....	....	....	....
Blackstock	....	....	....	2	....	....	1	....	....	....	....	....	....	....	....
Bowmanville	1	....	1	4	....	7	....	7	....	3	....	....	8	....	....
Enniskillen	....	....	....	2	....	7	1	....	....	....	....	....	....	....	....
Janetville	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Millbrook	....	1	....	1	....	3	....	....	....	....	....	....	....	....	....
Newcastle	....	....	1	....	....	....	....	2	....	....	....	....	....	....	....
Orono	....	4	3	4	2	3	1	2	....	....	....	....	....	....	....
Pontypool	....	....	1	1	....	3	....	1	....	....	....	....	....	....	....
Port Hope	....	2	1	3	7	16	....	2	....	3	2	1	4	....	....
Elgin—															
Fingal	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....
Port Burwell	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
St. Thomas	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
Straffordville	....	....	....	....	....	2	....	....	....	....	....	....	1	....	....
West Lorne	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Essex—															
Amherstburg	....	....	....	....	1	6	....	1	....	....	....	....	....	....	....
Belle River	....	....	....	....	1	....	....	1	....	....	....	....	....	....	....
Comber	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Essex	....	....	....	5	....	10	....	....	....	....	....	....	....	....	....
Kingsville	....	....	....	1	....	8	....	2	....	1	....	....	....	....	....
Leamington	3	10	....	1	....	2	....	....	....	....	1	....	3	....	....
Tecumseh	....	....	....	....	1	3	....	....	....	....	....	....	4	....	....
Walkerville	....	....	....	....	....	....	....	2	....	1	....	2	5	....	....
Windsor	....	....	....	....	7	53	....	3	....	64	14	20	292	1	3
Woodslee	....	....	....	....	....	....	....	....	....	....	....	....	2	....	....
Frontenac—															
Kingston	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Glengarry—															
Alexandria	....	....	....	1	....	4	....	....	....	....	....	....	....	....	....
Apple Hill	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
Dalhousie Mills	....	....	....	1	4	8	....	1	....	....	....	....	....	....	....
Dunvegan	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....
Maxville	....	....	....	....	....	3	....	....	....	....	....	....	....	....	....
Martintown	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Williamstown	....	....	....	2	....	....	1	....	....	....	....	....	....	....	....
Grenville—															
Kemptville	....	....	....	....	....	8	....	....	....	1	....	....	....	....	....
Prescott	....	....	....	1	2	5	....	2	....	....	....	....	5	....	....
Grey—															
Annan	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Clarksburg	....	....	....	1	....	1	....	2	....	....	....	....	....	....	....
Chatsworth	11	16	3	1	1	....	....	....	....	....	....	....	....	....	....
Desboro	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Dundalk	....	....	....	1	2	3	....	....	....	....	....	....	1	....	....
Durham	....	1	....	3	2	8	....	1	....	....	....	....	1	....	....
Flesherton	2	1	2	4	2	6	....	....	....	1	....	....	2	....	....
Hanover	....	....	....	2	2	6	1	5	....	....	....	....	1	....	....
Heathcote	....	....	....	1	....	1	1	....	....	....	....	....	....	....	....
Holstein	1	1	....	3	2	1	....	1	....	....	....	....	....	....	....
Markdale	....	2	3	7	....	6	1	1	....	....	....	....	....	....	....
Maxwell	....	1	....	....	....	1	....	....	....	....	....	....	....	....	....
Meaford	....	....	....	2	....	3	7	18	....	1	....	....	2	....	....
Owen Sound	2	1	1	16	14	54	3	7	....	14	....	2	39	....	....

ONTARIO AT TORONTO FOR THE YEAR 1920.—SPECIMENS EXAMINED.—*Con.*

Gonorrhea		Rabies Diagnosis				Milk											Waters		Liquors for License Department	Miscellaneous Specimens	Total for Year
+	—	Animal	Negri Bodies		Animal Inoculations	Food Content		Preserv-atives		Bacteriological					Extraneous Matter	Number of Milk Samples	Chemical	Bacterial			
			+	—		Fats	Total Solids	+	—	Tubercle Bac		Pus Cells		Count							
										+	—	+	—								
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12	15	....	....	....	....	....	....	..	..	....	....	....	....	....	....	....	....	84	....	....	....
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13	22	....	....	....	....	....	....	..	..	....	....	....	....	....	....	....	....	20	12	....	....

REPORT FROM LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH OF

Municipalities	Diphtheritic Swabs.				Tuberculous Sputa		Typhoid Bloods.		Syphilis						
	Release		Diagnosis							Wassermann Reaction				Treponema Pallida.	
	+	—	+	—	+	—	+	—	Colloidal Gold Reaction	Very Strongly Positive	Strongly Positive	+	—	+	—
Grey—Continued															
Priceville	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Thornbury	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....
Haldimand—															
Ayton	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Caledonia	4	3	3	1	....	3	2	5	....	....	....	....	1	....	....
Cayuga	....	....	....	....	....	2	....	....	....	....	....	....	1	....	....
Dunnville	2	1	1	2	1	5	....	9	....	....	....	....	1	....	....
Fisherville	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Hagersville	1	....	....	....	....	1	....	....	....	1	....	....	1	....	....
Jarvis	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Haliburton—															
Haliburton	....	....	....	6	2	31	....	7	....	6	2	....	70	....	1
Minden	....	....	....	....	....	2	....	....	....	....	....	....	5	....	....
Wilberforce	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Halton—															
Acton	....	....	1	....	2	2	....	....	....	....	....	....	....	....	....
Bronte	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Burlington	85	267	52	506	....	5	....	5	....	1	....	....	....	....	....
Campbellville	....	....	....	....	....	1	....	1	....	....	....	....	....	....	....
Georgetown	7	10	9	11	....	1	....	....	....	....	....	....	....	....	....
Milton	....	....	....	1	....	3	....	....	....	....	....	....	1	....	....
Oakville	13	6	1	5	....	3	2	1	....	....	....	1	5	....	....
Palermo	....	3	....	....	....	....	....	....	....	....	....	....	....	....	....
Hastings—															
Belleville	2	1	1	6	3	15	....	1	....	6	1	....	16	....	....
Deseronto	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....
Eldorado	....	1	....	2	....	4	....	2	....	....	....	....	....	....	....
Frankford	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Madoc	....	1	....	1	....	6	....	5	....	....	....	....	1	....	....
Marmora	18	15	15	35	1	3	....	10	....	....	....	....	1	....	....
Stirling	1	3	....	....	2	2	....	....	....	....	....	....	....	....	....
Trenton	....	....	2	1	1	9	....	....	....	4	....	1	16	....	....
Tweed	....	....	....	....	....	3	....	3	....	....	....	....	....	....	....
Huron—															
Blyth	....	....	....	....	2	4	....	....	....	....	....	....	....	....	....
Brucefield	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Brussels	....	....	....	....	....	2	....	1	....	....	....	....	....	....	....
Crediton	4	2	2	2	2	3	....	....	....	....	....	....	....	....	....
Dungannon	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Ethel	....	....	....	1	1	6	3	3	....	....	....	....	....	....	....
Exeter	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....
Goderich	....	1	....	3	2	6	....	5	....	....	....	....	5	....	....
Gorrie	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Hensall	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Kintail	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
Seaforth	....	....	....	4	....	3	1	3	....	1	....	....	....	....	....
Wingham	....	....	....	6	1	3	....	2	....	....	....	....	....	....	....
Wroxeter	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....
Kenora—															
Dryden	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....
Keewatin	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Kenora	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Sioux Lookout	....	....	....	1	....	2	....	....	....	....	....	....	....	....	....
Kent—															
Blenheim	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Chatham	....	1	....	1	11	22	....	6	....	3	....	1	8	....	....

ONTARIO AT TORONTO FOR THE YEAR 1920.—SPECIMENS EXAMINED.—*Con.*

Gonorrhea		Rabies Diagnosis				Milk											Waters		Liquors for License Department	Miscellaneous Specimens	Total for Year
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										Tubercle Bac		Pus Cells									
+	—	Animal	+	—	Animal Inoculations	Fats	Total Solids	+	—	+	—	+	—	Count	Extraneous Matter	Number of Milk Samples	Chemical	Bacterial			
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	1	....	....	....
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REPORT FROM LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH OF

Municipalities	Diphtheritic Swabs.				Tuberculous Sputa		Typhoid Bloods.		Syphilis						
	Release		Diagnosis						Wassermann Reaction.					Treponema Pallida.	
	+	—	+	—	+	—	+	—	Colloidal Gold Reaction	Very Strongly Positive	Strongly Positive	+	—	+	—
Kent—Continued															
Dresden	....	....	....	1	2	10	....	4	....	....	....	....	....	....	....
Highgate	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Merlin	....	....	....	....	....	1	....	....	....	1	....	....	1	....	....
Ridgetown	2	....	1	1	....	....	....	1	....	....	....	....	....	....	....
Thamesville	....	....	....	1	....	4	....	....	....	....	....	....	....	....	....
Tilbury	....	....	....	....	1	....	....	1	....	....	....	....	4	....	....
Wallaceburg	....	....	....	3	1	7	....	2	....	....	....	....	....	....	....
Lambton—															
Alvinston	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Camlachie	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Florence	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Forest	16	6	3	4	1	2	....	....	....	....	....	....	....	....	....
Inwood	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
Petrolia	....	1	1	....	....	3	....	1	....	....	....	....	....	....	....
Port Lambton	....	....	1	....	....	3	....	....	....	....	....	....	....	....	....
Sarnia	....	....	1	3	1	3	1	5	....	2	....	1	6	....	....
Thedford	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....
Watford	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Wyoming	....	....	1	....	....	1	....	2	....	....	....	....	....	....	....
Lanark—															
Almonte	2	1	1	4	2	4	....	....	....	....	....	....	1	....	....
Carleton Place	....	....	....	....	....	....	....	3	....	1	....	1	....	....	....
Lanark	....	1	....	....	....	1	....	....	....	....	....	....	....	....	....
Middleville	....	....	....	....	1	2	....	1	....	....	....	....	....	....	....
Pakenham	....	....	....	1	....	12	....	....	....	....	....	....	1	....	....
Perth	....	....	1	2	1	3	....	1	....	....	....	....	....	....	....
Smith's Falls	....	....	1	1	....	....	1	....	....	....	....	....	....	....	....
Leeds—															
Athens	1	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Brockville	1	3	....	5	2	7	1	4	....	3	....	....	4	....	1
Elgin	....	....	....	....	2	1	....	1	....	....	....	....	....	....	....
Mallorytown	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Lennox & Addington—															
Tamworth	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Lincoln—															
Beamsville	....	....	....	....	1	4	....	5	....	2	....	1	6	....	....
Grimsby	....	2	5	5	....	2	....	1	....	1	....	....	1	....	....
Jordan	....	....	1	....	....	....	....	4	....	....	....	....	....	....	....
Niagara-on-the-Lake	....	....	....	....	1	2	....	2	....	....	....	....	....	....	....
Port Dalhousie	....	....	....	....	....	....	....	3	....	....	....	....	....	....	....
St. Catharines	18	40	6	17	14	67	1	13	....	10	4	12	53	....	1
Smithville	....	....	....	....	....	1	1	....	....	....	....	....	....	....	....
Manitoulin—															
Gore Bay	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Little Current	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Middlesex—															
Adelaide	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Ailsa Craig	....	....	....	....	....	4	....	....	....	....	....	....	....	....	....
Denfield	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Glencoe	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
London	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....
Mt. Brydges	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....
Newbury	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Strathroy	....	....	....	....	....	6	....	....	....	....	....	....	....	....	....

ONTARIO AT TORONTO FOR THE YEAR 1920.—SPECIMENS EXAMINED.—*Con.*

Gonorrhea		Rabies Diagnosis				Milk											Waters		Liquors for License Department	Miscellaneous Specimens	Total for Year
			Negri Bodies			Food Content		Preserv-atives		Bacteriological					Extraneous Matter	Number of Milk Samples					
										Tubercle Bac		Pus Cells									
+	—	Animal	+	—	Animal Inoculations	Fats	Total Solids	+	—	+	—	+	—	Count			Chemical	Bacterial			
..	..	....	....	....	....	....	....	..	..	....	....	....	....	....	....	....	....	2	....	....	....
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..	..	dog	....	1	....	....	....	..	..	....	....	....	....	....	....	....	....	....	....	....	....
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3	6	....	....	....	....	....	....	..	..	....	....	....	....	....	....	....	....	2	....	....	....
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..	..	dog	1	....	....	....	....	..	..	....	....	....	....	....	....	....	....	2	....	....	....
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REPORT FROM LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH OF

Municipalities	Diphtheritic Swabs.				Tuberculous Sputa		Typhoid Bloods.		Syphilis						
	Release		Diagnosis							Wassermann Reaction				Treponema Pallida.	
	+	—	+	—	+	—	+	—	Colloidal Gold Reaction	Very Strongly Positive	Strongly Positive	+	—	+	—
Muskoka—															
Bracebridge	....	1	2	1	6	8	....	3	....	....	....	....	8	....	....
Glen Mount	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Gravenhurst	....	....	3	1	....	....	....	1	....	3	....	....	15	....	....
Huntsville	1	....	5	6	....	1	....	....	....	....	....	....	3	....	....
Mac Tier	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Muskoka	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Port Carling	....	1	....	....	....	1	....	....	....	....	....	....	....	....	....
Port Sydney	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Sanitarium	....	....	....	....	....	....	....	....	....	....	....	....	2	....	....
Severn Bridge	....	....	....	1	1	2	....	1	....	....	....	....	....	....	....
Nipissing—															
North Bay	4	7	6	10	3	10	3	12	....	10	6	8	43	2	....
Sturgeon Falls	....	4	2	2	4	8	....	....	....	1	....	....	....	....	....
Norfolk—															
Delhi	....	....	7	16	1	12	....	2	....	5	....	1	7	....	....
Langton	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Port Dover	....	....	....	1	2	13	1	8	....	....	....	....	7	....	....
Port Rowan	....	....	....	....	....	3	....	....	....	....	....	....	1	....	....
Simcoe	2	2	3	18	2	19	2	11	....	11	1	2	19	....	....
Waterford	....	1	2	5	....	11	....	1	....	....	....	....	3	....	....
Northumberland—															
Brighton	1	8	7	5	1	3	....	1	....	....	....	....	....	....	....
Campbellford	....	....	3	1	1	11	....	2	....	....	....	....	4	....	....
Castleton	....	....	....	1	2	1	....	....	....	....	1	....	....	....	....
Cobourg	3	9	16	28	4	16	....	5	4	4	....	....	34	....	....
Colborne	....	1	....	2	....	....	....	3	....	....	....	....	....	....	....
Grafton	15	10	9	9	....	....	....	....	....	....	....	....	....	....	....
Hastings	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....
Warkworth	....	....	....	1	....	5	....	3	....	....	....	....	....	....	....
Woolner	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....
Ontario—															
Beaverton	6	16	7	10	....	6	1	3	....	....	....	....	....	....	....
Brooklin	....	....	....	....	1	2	....	....	....	....	....	....	....	....	....
Brougham	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
Cannington	....	1	....	2	....	....	....	3	....	....	....	....	....	....	....
Claremont	....	....	....	3	....	4	....	1	....	....	....	....	....	....	....
Dunbarton	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Oshawa	1	1	1	10	3	19	....	3	....	6	1	1	11	....	....
Pickering	....	....	....	....	....	2	....	1	....	....	....	....	....	....	....
Port Perry	....	....	....	1	1	2	....	2	....	....	....	....	....	....	....
Sunderland	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....
Uxbridge	2	1	....	5	1	9	1	5	....	....	....	....	....	....	....
Whitby	....	....	....	....	1	3	....	....	....	....	....	....	2	....	....
Oxford—															
Drumbo	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....
Embro	....	....	....	....	....	2	....	1	....	....	....	....	....	....	....
Ingersoll	....	....	1	4	3	10	....	7	....	....	....	....	1	....	....
Mount Elgin	....	5	....	6	....	1	....	1	....	....	....	....	....	....	....
Norwich	....	....	....	....	....	2	....	2	....	....	....	....	....	....	....
Otterville	....	....	....	1	1	3	....	2	....	1	....	1	2	....	....
Plattsville	....	....	....	....	1	2	....	....	....	....	....	....	....	....	....
Princeton	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Springford	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Tavistock	....	....	....	2	....	1	1	3	....	....	....	....	....	....	....
Tillsonburg	....	....	....	1	....	11	1	6	....	2	....	....	1	....	....
Woodstock	3	4	8	14	5	27	1	8	....	1	1	....	11	....	....

ONTARIO AT TORONTO FOR THE YEAR 1920.—SPECIMENS EXAMINED.—*Con.*

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+	—	Animal	+	—	Animal Inoculations	Fats	Total Solids	+	—	+	—	+	—	Count			Chemical	Bacterial			
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	....	....
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....	....	dog	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	1	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	4	....	....	....
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3	9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	26	5	1	....
....	7	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	4	2	....	....
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1	11	2d'gs	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	2	4	1	....
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10	16	....	....	....	....	....	....	....	....	....	....	....	....	3	....	....	....	180	5	3	....
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....	2	dog	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	....

REPORT FROM LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH OF

Municipalities	Diphtheritic Swabs.				Tuberculous Sputa		Typhoid Bloods.		Syphilis						
	Release		Diagnosis							Wassermann Reaction				Treponema Pallida.	
	+	—	+	—	+	—	+	—	Colloidal Gold Reaction	Very Strongly Positive	Strongly Positive	+	—	+	—
Parry Sound—															
Ardbeg	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Burk's Falls	2	4	....	10	....	16	2	9	....	....	....	....	1	....	....
Byng Inlet	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
Callander	....	....	....	....	....	....	....	5	....	....	....	....	....	....	....
Depot Harbor	....	....	....	2	1	2	....	1	....	....	....	....	3	....	....
Fairholme	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Kearney	....	2	1	11	....	1	....	4	....	....	....	....	....	....	....
Magnetawan	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Parry Sound	2	6	4	12	7	8	....	1	....	9	....	....	18	....	....
Powassan	2	3	1	7	1	5	2	6	....	....	....	....	....	....	....
Sprucedale	....	....	....	....	....	7	....	1	....	....	....	....	....	....	....
South River	....	....	....	2	....	....	....	1	....	....	....	....	....	....	....
Sundridge	....	....	....	1	3	13	2	12	....	1	....	....	2	....	....
Peel—															
Alton	....	3	....	8	....	1	....	2	....	....	....	....	....	....	....
Bolton	....	....	....	....	2	4	....	....	....	....	....	....	1	....	....
Brampton	1	1	3	6	1	1	....	....	....	....	....	....	1	....	....
Burnhamthorpe	....	..	..	....	1	2	....	....	....	....	....	....	....	....	....
Caledon	....	....	....	2	....	2	....	2	....	....	....	....	....	....	....
Clarkson	....	....	....	2	....	....	....	....	....	....	....	....	....	....	...
Lorne Park	....	....	....	...	....	....	....	....	..	....	....	....	....	....	....
Palgrave	1	3	....	2	....	3	...	....	....	....	....	....	....	....	....
Port Credit	4	17	3	11	2	7	1	....	....	....	....	....	....	....	....
Streetsville	....	....	....	....	1	1	....	2	....	....	....	....	....	....	....
Perth—															
Atwood	....	....	....	2	....	....	....	2	....	....	....	..	....	....	....
Kirkton	....	....	....	....	1	...	....	....	....	....	....	....	....	....	....
Listowel	....	....	....	1	....	4	....	....	....	....	....	....	....	....	....
Milverton	....	....	....	....	....	1	....	....	....	....	....	....	....	....	...
Mitchell	....	....	....	2	1	4	....	....	....	....	....	1	....	....	....
St. Mary's	....	....	1	1	....	1	....	....	....	....	....	....	....	....	....
Stratford	2	1	3	5	9	24	....	....	....	1	....	1	....	....	....
Peterboro—															
Bailieboro	....	....	....	....	....	2	....	1	....	....	....	....	....	....	....
Havelock	3	3	1	3	....	4	....	....	....	....	....	....	1	....	....
Lakefield	....	1	....	1	....	1	....	....	....	....	....	....	....	....	....
Peterboro	87	482	22	53	6	28	1	19	....	14	3	5	88	....	2
Prescott—															
Alfred	....	....	....	....	....	3	....	....	....	....	....	....	....	....	....
Fournier	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Hawkesbury	....	1	4	6	3	16	....	12	....	....	....	....	1	....	....
St. Eugene	....	....	....	....	....	3	....	....	....	....	....	....	....	....	....
Prince Edward—															
Bloomfield	....	....	3	1	1	....	....	....	....	1	....	....	....	....	....
Consecon	....	....	....	1	....	4	....	....	....	....	....	....	....	....	....
Picton	1	5	7	4	3	8	....	....	....	....	....	....	....	....	....
Wellington	....	....	1	....	1	3	....	....	....	....	....	....	....	....	....
Rainy River—															
Fort Frances	....	....	1	....	2	3	....	....	....	....	....	....	....	....	....
Renfrew—															
Arnprior	....	....	....	1	1	4	....	....	....	1	....	....	6	....	....
Beachbury	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....
Catabogie	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Combermere	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....
Eganville	....	....	....	2	3	8	....	2	....	....	....	....	....	....	....

ONTARIO AT TORONTO FOR THE YEAR 1920.—SPECIMENS EXAMINED.—*Con.*

Gonorrhea		Rabies Diagnosis				Milk											Waters		Liquors for License Department	Miscellaneous Specimens	Total for Year
			Negri Bodies			Food Content		Preserv-atives		Bacteriological					Extraneous Matter	Number of Milk Samples					
										Tubercle Bac		Pus Cells									
+	—	Animal	+	—	Animal Inoculations	Fats	Total Solids	+	—	+	—	+	—	Count			Chemical	Bacterial			
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1	1	....	....	....	....	....	....	..	..	....	....	....	....	15	....	....	2	23	....	....	....
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REPORT FROM LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH OF

Municipalities	Diphtheritic Swabs.				Tuberculous Sputa		Typhoid Bloods.		Syphilis						
	Release		Diagnosis							Wassermann Reaction				Treponema Pallida.	
	+	—	+	—	+	—	+	—	Colloidal Gold Reaction	Very Strongly Positive	Strongly Positive	+	—	+	—
Renfrew—Continued															
Pembroke	1	....	....	3	....	....	....	1	....	....	....	....	3	....	....
Renfrew	....	1	....	....	3	9	....	2	....	....	....	....	....	....	....
Westmeath	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Russell—															
Bourget	....	....	2	6	3	3	....	1	....	....	....	....	....	....	....
Clarence Creek	1	11	1	2	....	....	....	1	....	....	....	....	....	....	....
Cumberland	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Embrun	....	....	....	....	2	3	....	....	....	....	....	....	....	....	....
Rockland	....	....	....	....	....	1	....	2	....	....	....	....	....	....	....
Russell	....	....	....	....	2	2	....	....	....	....	....	....	....	....	....
St. Ouge	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Simcoe—															
Alliston	....	....	....	....	1	....	....	1	....	....	....	....	....	....	....
Angus	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....
Barrie	8	4	4	10	....	12	....	9	....	1	....	....	10	....	....
Beeton	....	....	2	7	....	....	....	....	....	....	....	....	....	....	....
Bond Head	....	....	....	3	....	....	....	....	....	....	....	....	....	....	....
Bradford	....	1	....	3	....	....	....	....	....	....	....	....	....	....	....
Christian Island	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Churchill	....	....	....	2	....	6	....	....	....	....	....	....	....	....	....
Coldwater	1	4	3	7	2	5	1	6	....	1	....	....	3	....	....
Collingwood	....	....	....	2	4	11	1	2	....	22	2	4	44	....	....
Cookstown	....	....	....	1	....	4	....	....	....	....	....	....	1	....	....
Creemore	....	....	....	2	....	2	3	3	....	....	....	....	....	....	....
Edgar	....	....	....	2	1	1	....	1	....	....	....	....	....	....	....
Elmvale	....	....	....	2	....	2	....	2	....	....	....	....	....	....	....
Everett	....	....	....	....	1	2	1	2	....	....	....	....	1	....	....
Lisle	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Midland	....	11	5	14	1	10	....	....	....	8	2	3	28	....	....
Orillia	54	87	34	78	5	21	3	18	....	....	....	....	1	....	....
Penetang	....	....	....	5	2	8	1	2	....	1	....	....	3	....	....
Phelpston	....	....	....	4	....	....	....	....	....	....	....	....	....	....	....
Port McNicoll	....	....	1	1	....	....	1	....	....	....	....	....	....	....	....
Stayner	3	2	4	11	2	10	....	1	....	....	....	....	1	....	....
Stroud	....	5	1	....	....	....	....	....	....	....	....	....	....	....	....
Sutton	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....
Victoria Harbor	7	6	8	12	3	11	1	7	....	1	....	....	1	....	....
Waubaushene	....	....	....	4	....	....	....	....	....	....	....	....	....	....	....
Stormont—															
Aultsville	....	....	....	....	2	2	....	....	....	2	....	....	....	....	....
Cornwall	....	1	....	....	2	1	....	1	....	2	....	1	3	....	....
Crysler	....	....	....	....	....	....	....	2	....	....	....	....	1	....	....
Mille Roche	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Moose Creek	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Sudbury—															
Burwash	....	....	....	....	....	2	....	....	....	35	1	22	419	....	....
Capreol	....	....	....	2	....	1	....	1	....	....	....	....	....	....	....
Chapleau	....	....	....	1	3	3	....	1	....	1	1	2	10	....	....
Coniston	....	1	4	8	3	4	....	....	....	1	....	....	1	....	....
Copper Cliff	....	....	4	7	....	6	1	3	....	1	....	....	5	....	....
Creighton Mine	....	....	....	1	....	2	....	....	....	....	....	....	....	....	....
Espanolia	....	....	....	....	1	1	....	2	....	....	....	....	....	....	....
Massey	....	....	....	3	....	1	....	1	....	....	....	....	....	....	....
Murray Mine	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Sellwood	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....
Sudbury	....	....	1	5	5	27	1	3	....	26	2	11	64	....	1

ONTARIO AT TORONTO FOR THE YEAR 1920.—SPECIMENS EXAMINED.—*Con.*

Gonorrhea		Rabies Diagnosis				Milk											Waters		Liquors for License Department	Miscellaneous Specimens	**Total for Year**
			Negri Bodies			Food Content		Preserv-atives		Bacteriological					Extraneous Matter	Number of Milk Samples					
										Tubercle Bac		Pus Cells									
+	—	Animal	+	—	Animal Inoculations	Fats	Total Solids	+	—	+	—	+	—	Count			Chemical	Bacterial			
..	3	....	....	....	....	....	....	..	..	....	....	....	....	....	....	....	....	18	....	....	....
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5	2	....	....	....	....	....	....	..	..	....	....	....	....	....	....	....	....	8	1	2	....
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1	1	dog	....	1	....	....	....	..	..	....	....	....	....	....	....	....	....	177	20	79	....
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..	3	....	....	....	....	....	....	..	..	....	....	....	....	....	....	....	....	104	5	....	....

REPORT FROM LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH OF

Municipalities	Diphtheritic Swabs.				Tuberculous Sputa		Typhoid Bloods.		Syphilis						
	Release		Diagnosis							Wassermann Reaction				Treponema Pallida.	
	+	—	+	—	+	—	+	—	Colloidal Gold Reaction	Very Strongly Positive	Strongly Positive	+	—	+	—
Sudbury—Continued															
Turbine				2						1			24		
Tweed															
Webbwood				1				1				1	1		
Worthington				1											
Thunder Bay—															
Fort William						3	1	6		30	8	12	87		
Jellicoe															
Nipigon															
Port Arthur		1		1	2	4	2	4		3		1	10		
Temiskaming—															
Charlton				2											
Cobalt			3	8	5	19		2		11	1	2	18		
Cochrane				3		7		8		6		1	15		1
Englehart					1	1				3	1				
Gowganda						1		1							
Haileybury			4	1	2	15				3		2	14		
Heaslip															
Iroquois Falls				1	1	2		3							
Kapuskasing				1	9	23		1		1	2	1	6		
Kirkland Lake	2	8													
New Liskeard		1		3	2	13		3		1					
North Cobalt						3									
Schumacher								2							
Smooth Rock Falls						1		2					2		
South Porcupine						1				3			4		
Timmins				2		2	1	12		3		1	15		
Whitney								1							
Victoria—															
Bobcaygeon								1							
Cambray					1										
Fenelon Falls			1	1		1		1							
Kirkfield						1									
Lindsay	1		1	3	4	22	2	13							
Little Britain				1	1	1		1							
Manilla								1							
Omemee				2	1	9		1							
Woodville				1				1							
Waterloo—															
Ayr				4	1	6		3		1			6		
Elmira	1		2			1									
Galt		3	1	11	7	23	1	1		4		2	18		
Hespeler				1		1				1		1	4		
Kitchener	13	17	1	16	5	27		5		2		1	20		1
Kinwood			1	1		2							1		
New Dundee				2											
New Hamburg				3		4		1							
Preston				1	3	3		1					1		
Waterloo	4	1	1	2	7	11									
Wellesley				3	3	5		1					1		
West Montrose			1												
Welland—															
Bridgeburg				5	2	1		3							
Chippawa						3									
Fenwick						3									
Fonthill						3		1							
Fort Erie					1										

ONTARIO AT TORONTO FOR THE YEAR 1920.—SPECIMENS EXAMINED.—*Con.*

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		Animal	Negri Bodies		Animal Inoculations	Food Content		Preservatives		Bacteriological					Extraneous Matter	Number of Milk Samples	Chemical	Bacterial			
+	—		+	—		Fats	Total Solids	+	—	Tubercle Bac		Pus Cells		Count							
										+	—	+	—								
																				1	
																		12			
																		9			
																		1			
																		4			
																		2			
																		12			
	2													2			1	65			
4	12																	11	1		
																		1			
7	10																	12	2		
																		1			
	3																	78	2		
	3																				
																		16	1		
														3				6			
																			2		
														1				1			
	1																	4	2		
2																		3	2		
																		8	4		
																		5			
																		6	5		
																		1		1	
		dog		1														2			
														1							
														3				2			
2	5																	11		1	
																		13	2		
3	17																8	59	25	2	
																		1			
																		1			
																		10			
																		1			
																		3			
1																		19			
																		1			

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	+	—	+	—	+	—	+	—	Colloidal Gold Reaction	Very Strongly Positive	Strongly Positive	+	—	+	—
Welland—Continued															
Marshville	....	....	....	2	1	1	....	....	....	....	....	....	....	....	....
Niagara Falls	....	....	....	2	4	10	....	....	....	4	1	3	21	....	....
Port Colborne	....	....	....	....	....	5	1	1	....	....	....	....	....	....	....
Port Robinson	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Ridgeway	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....
Stevensville	....	....	2	4	....	....	....	1	....	....	....	....	....	....	....
Thorold	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....
Welland	....	1	2	3	1	8	1	3	....	12	2	4	33	....	2
Wellington—															
Alma	....	....	....	....	....	3	....	1	....	....	....	....	....	....	....
Arthur	1	....	6	4	....	1	....	1	....	....	....	....	....	....	....
Clifford	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Drayton	....	....	....	3	....	2	2	2	....	1	....	....	2	....	....
Elora	....	....	....	1	....	3	....	....	....	....	....	....	....	....	....
Erin	....	....	1	2	1	6	....	3	....	....	....	....	....	....	....
Fergus	....	....	....	....	3	4	....	....	....	....	....	....	....	....	....
Glen Allan	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Guelph	33	48	11	53	1	4	....	6	....	29	9	19	129	....	....
Harriston	5	5	6	10	....	2	....	2	....	1	....	....	1	....	....
Hillsburg	....	....	2	1	....	2	....	....	....	....	....	....	....	....	....
Moorefield	1	....	1	1	....	2	....	....	....	....	....	....	....	....	....
Morriston	....	....	....	2	....	1	....	2	....	1	....	....	....	....	....
Mount Forest	....	....	....	1	2	11	....	1	....	....	....	....	1	....	....
Palmerston	....	4	1	2	....	1	1	1	....	1	....	....	3	....	....
Rockwood	....	....	....	2	....	1	1	1	....	....	....	....	....	....	....
Speedwell	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....
Wentworth—															
Binbrook	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
Dundas	....	....	....	1	1	6	....	....	....	....	....	1	5	....	....
Freelton	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....
Hamilton	....	1	....	....	....	1	2	1	....	75	12	15	274	....	....
Lynden	....	....	1	1	....	2	....	....	....	....	....	....	....	....	....
Stony Creek	....	2	....	1	....	....	....	....	....	....	....	1	....	....	....
York—															
Agincourt	....	....	....	3	1	5	....	....	....	....	....	....	1	....	....
Aurora	21	13	18	11	1	....	....	1	....	....	....	....	....	....	....
Downsview	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Fairbank	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Gormley	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Highland Creek	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Humber Bay	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Islington	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Keswick	....	....	....	1	....	....	....	3	....	....	....	....	....	....	....
King	....	1	....	3	....	1	....	....	....	....	....	....	1	....	....
Lansing	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Locust Hill	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Long Branch	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....
Markham	1	....	1	1	1	4	....	3	....	1	....	....	....	....	....
Mimico	9	56	59	279	1	7	....	....	....	4	....	....	1	....	....
Mimico Beach	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Mount Albert	....	1	....	2	....	4	....	4	....	....	....	....	....	....	....
Mount Dennis	....	....	1	5	....	....	....	2	....	....	....	....	....	....	....
Newmarket	....	....	2	3	....	1	....	3	2	11	....	2	46	....	....
New Toronto	4	6	3	11	2	1	....	2	....	....	....	....	2	....	....
Richmond Hill	....	....	....	1	1	4	....	1	....	....	....	....	1	....	....
Roches Point	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....

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			+	—		Fats	Total Solids	+	—	Tubercle Bac		Pus Cells		Count							
										+	—	+	—								
..	..	....	....	....	....	....	....	..	..	....	....	....	....	....	....	....	....	....	....	....	....
3	13	....	....	....	....	....	....	..	..	....	....	....	....	....	....	....	....	23	3	....	....
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..	2	....	....	....	....	....	....	..	..	....	....	....	....	....	....	....	....	3	....	....	....
..	..	dog	....	1	....	....	....	..	..	....	....	....	....	....	....	....	....	1	....	....	....
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..	..	dog	....	1	....	....	....	..	..	....	....	....	....	41	....	....	....	6	57	6	....
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1	2	....	....	....	....	....	....	..	..	....	....	....	....	....	....	....	....	....	....	....	....
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REPORT FROM LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH OF

Municipalities	Diphtheritic Swabs.				Tuberculous Sputa		Typhoid Bloods.		Syphilis						
	Release		Diagnosis							Wassermann Reaction				Treponema Pallida.	
	+	—	+	—	+	—	+	—	Colloidal Gold Reaction	Very Strongly Positive	Strongly Positive	+	—	+	—
York—Continued															
Scarboro	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Schomberg	1	8	....	3	....	....	....	....	....	....	....	....	....	....	....
Silverthorne	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Stouffville	....	....	....	3	....	1	....	....	....	....	....	....	3	....	....
Sutton West	....	1	1	4	....	1	....	1	....	....	....	....	....	....	....
Swansea	4	2	2	4	....	....	....	....	....	....	....	....	....	....	....
Thornhill	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Todmorden	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....
Toronto	32	56	26	57	8	32	3	18	1	427	70	193	2001	8	10
Unionville	....	....	....	....	2	2	....	....	....	....	....	....	....	....	....
Weston	1	9	2	9	4	4	....	7	....	2	....	2	8	....	2
West Hill	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Willowdale	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....
Woodbridge	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....
Totals	571	1434	536	1917	407	1772	87	695	8	1129	174	444	4912	11	26

ONTARIO AT TORONTO FOR THE YEAR 1920.—SPECIMENS EXAMINED.—*Con.*

Gonorrhea		Rabies Diagnosis				Milk											Waters		Liquors for License Department	Miscellaneous Specimens	Total for Year
		Animal	Negri Bodies		Animal Inoculations	Food Content		Preservatives		Bacteriological					Extraneous Matter	Number of Milk Samples	Chemical	Bacterial			
										Tubercle Bac		Pus Cells		Count							
+	—		+	—		Fats	Total Solids	+	—	+	—	+	—								
...	...	.....	...	....	....	...	....	..	..	....	....	....	....	...	....	....	....	3	....	...	....
...	...	.....	...	....	....	...	....	..	..	....	....	....	....	...	....	....	....	1	....	...	....
...	...	.....	...	....	....	...	....	..	..	....	....	....	....	...	....	....	....	1	....	...	....
...	...	.....	...	....	....	...	....	..	..	....	....	....	....	2	....	....	....	1	....	...	....
...	2	.....	...	....	....	...	....	..	..	....	....	....	....	...	....	....	....	6	....	...	....
...	...	.....	...	....	....	...	....	..	..	....	....	....	....	...	....	....	....	....	....	...	....
...	...	.....	...	....	....	...	....	..	..	....	....	....	....	1	....	....	....	....	....	...	....
...	...	.....	...	....	....	...	....	..	..	....	....	....	....	...	....	....	....	4	....	...	....
107	381	4 d'gs	...	4	....	...	....	..	..	....	....	....	....	4	....	....	14	199	239	56	....
...	...	.....	...	....	....	...	....	..	..	....	....	....	....	...	....	....	....	6	....	...	....
13	21	.....	...	....	....	...	....	..	..	....	....	....	....	...	....	....	....	17	....	...	....
...	...	.....	...	....	....	...	....	..	..	....	....	....	....	...	....	....	....	1	....	...	....
...	...	.....	...	....	....	...	....	..	..	....	....	....	....	...	....	....	....	....	....	...	....
...	...	.....	...	....	....	...	....	..	..	....	....	....	....	...	....	....	....	....	....	...	....
242	731	.....	4	19	....	...	....	..	..	....	....	....	....	150	....	....	40	2271	595	319	....

Total number of specimens examined during the year 1920, 18,494.

YEARLY REPORT.

Outfits, Vaccines and Treatments supplied by Laboratory at Toronto during the year 1919.

Municipalities	Outfits sent out								Doses of Typhoid-paratyphoid Vaccine supplied	Whooping Cough Vaccine	Silver nitrate for prevention of Ophthalmia	Pasteur preventive treatment	
	Syphilis (Wassermann)	Syphilis (Treponema Pallida)	Gonorrhea	Water	Diphtheria	T.B.	Typhoid	Total				cases	No. of Injections
Algoma—													
Blind River	6			1		5				140			
Bruce Mines					24	5			30	20			
Cunickel				6									
Cutler	6			6	72	60	12		20	10			
Foleyet	12		12	32	24	10	12			10			
Hearst											25		
Hornepayne	12	6	6	13	6	5	6				5		
Levack										100	20		
Sault Ste. Marie	27		9		78	15	6		42	492	5		
Thessalon									12	140			
Brant—													
Brantford	238	36	124	24	612	100	144		372	550	750	1	24
Ohsweken					36								
Paris	9					20				30			
St. George	10		12		12				6	14			
Bruce—													
Cape Croker				1									
Chesley	10	3	9	18	78	15	18		12	30			
Elmwood											10		
Kincardine				8									
Lion's Head	6		6			5							
Lucknow						5							
Mildmay					6	15							
Paisley				6		10							
Port Elgin					18	30	24		30				
Ripley						10			12				
Tara									12	56	10		
Teeswater										28			
Tiverton	6	4	6	6	6	5	6				15		
Walkerton	1	4	4		12	25	12						
Wiarton	13	1	1		30	15	6		6	14	5		
Carleton—													
Carp					24	25							
North Gower					6	5	6						
Ottawa	1576	12	24		36	280	36		11,825	3,178	2,540		
Dufferin—													
Grand Valley	2									100			
Orangeville					6	15							
Shelburne					6								
Dundas—													
Morrisburg	18		6			15			12		50		
Durham—													
Bethany					6	5	6						
Bowmanville	12		12	18						52	180		
Burketon Junction					24	20							
Garden Hill											30		
Millbrook					12	10							
Orono									12	48	30		
Port Hope	36		114	96		360				42	30		
Elgin—													
Fingal				1									
St. Thomas												1	24
West Lorne									20				
Essex—													
Amherstburg				12	36	10					5		
Comber										30			

YEARLY REPORT.

Outfits, Vaccines and Treatments supplied by Laboratory at Toronto during the year 1919.—Continued.

Municipalities	Outfits sent out								Doses of Typhoid-paratyphoid Vaccine supplied	Whooping Cough Vaccine	Silver nitrate for prevention of Ophthalmia	Pasteur preventive treatment	
	Syphilis (Wassermann)	Syphilis (Treponema Pallida)	Gonorrhea	Water	Diphtheria	T.B.	Typhoid	Total				cases	No. of Injections
Essex—Con.													
Essex	....	....	....	....	60	....	....	....	48	....	....	....	....
Harrow	....	....	....	....	....	....	....	....	18	....	....	....	....
Kingsville	....	....	....	2	....	....	....	....	54	....	....	....	....
Leamington	8	....	....	....	12	....	....	....	80	30	....	....	....
Ojibway	....	....	....	17	....	....	....	....	....	....	....	....	....
South Woodslee	2	....	....	....	....	....	....	....	....	....	....	....	....
Walkerville	48	....	....	....	....	20	....	....	....	....	30	....	....
Windsor	1006	50	50	100	....	1,060	12	....	90	311	165	....	....
Woodslee	6	....	....	....	....	....	....	....	20	....	....	....	....
Frontenac—													
Kingston	....	....	....	....	....	35	....	....	188	184	....	....	....
Sharbot Lake	....	....	....	....	24	....	....	....	....	....	....	....	....
Sydenham	....	....	....	....	....	....	....	....	....	280	....	....	....
Glengarry—													
Alexandria	....	....	....	....	....	....	....	....	24	....	....	....	....
Apple Hill	....	....	....	....	....	10	18	....	....	....	....	....	....
Dalhousie Mills	....	....	....	....	....	20	....	....	....	....	....	....	....
Martintown	....	....	....	....	6	5	6	....	....	....	....	....	....
Grenville—													
Kemptville	....	....	....	....	....	5	....	....	78	48	20	....	....
Prescott	12	....	12	12	....	30	24	....	24	....	15	....	....
Grey—													
Ayton	....	....	....	....	....	....	....	....	....	100	....	....	....
Chatsworth	....	....	....	....	....	....	....	....	20	....	10	....	....
Clarksburg	....	....	....	1	....	....	....	....	....	....	....	....	....
Dromore	....	....	....	....	....	....	6	....	10	....	....	....	....
Dundalk	8	....	....	....	....	10	....	....	....	28	....	....	....
Durham	6	....	....	....	....	15	....	....	....	56	....	....	....
Flesherton	6	....	....	1	12	20	....	....	....	....	....	....	....
Hanover	6	4	6	7	6	15	12	....	37	112	20	....	....
Holland Centre	....	....	....	....	12	....	....	....	....	....	....	....	....
Holstein	....	....	....	....	....	....	6	....	....	....	....	....	....
Maxwell	....	....	....	....	12	10	....	....	....	....	....	....	....
Meaford	8	....	....	24	....	20	60	....	....	20	....	....	....
Owen Sound	127	12	36	30	....	150	....	....	....	250	125	....	....
Priceville	....	....	....	....	....	....	....	....	30	....	....	....	....
Haldimand													
Canfield	1	1	1	....	6	5	6	....	10	10	5	....	....
Caledonia	....	....	....	....	24	15	24	....	18	....	....	....	....
Cayuga	7	1	1	....	6	5	6	....	....	....	....	....	....
Dunnville	8	....	....	6	18	15	24	....	6	....	....	....	....
Fisherville	....	....	....	....	....	....	....	....	6	....	....	....	....
Hagersville	4	....	....	....	12	5	....	....	....	....	....	....	....
Jarvis	....	....	....	....	36	....	....	....	....	....	5	....	....
Haliburton—													
Haliburton	102	3	50	....	24	85	12	....	18	42	20	....	....
Minden	4	....	4	....	....	10	....	....	....	....	....	....	....
Halton—													
Acton	2	1	4	4	6	15	6	....	....	....	....	....	....
Burlington	1	1	1	18	1,988	5	6	....	....	....	....	....	....
Georgetown	....	....	6	....	48	....	....	....	....	....	....	....	....
Hornby	....	....	....	1	....	....	....	....	....	....	....	....	....
Milton	4	....	....	....	....	....	....	....	....	....	....	....	....
Oakville	....	....	....	36	72	30	....	....	....	40	....	....	....
Palermo	....	....	....	....	....	....	....	....	6	10	5	....	....

YEARLY REPORT.

Outfits, Vaccines and Treatments supplied by Laboratory at Toronto during the year 1919.—Continued.

Municipalities	Outfits sent out								Doses of Typhoid-paratyphoid Vaccine supplied	Whooping Cough Vaccine	Silver nitrate for prevention of Ophthalmia	Pasteur preventive treatment	
	Syphilis (Wassermann)	Syphilis (Treponema Pallida)	Gonorrhea	Water	Diphtheria	T.B.	Typhoid	Total				cases	No. of Injections
Hastings—													
Bancroft	....	....	....	....	....	....	....	....	....	....	205	....	....
Belleville	30	1	....	32	78	20	42	....	25	58	100	....	....
Deseronto	....	....	....	....	....	....	....	....	....	....	30	....	....
Madoc	6	....	6	....	6	5	6	....	6	84	30	....	....
Marmora	12	....	13	46	108	25	12	....	....	....	15	....	....
Maynooth	....	....	....	....	....	....	....	....	....	....	5	....	....
Roslin	....	....	....	....	....	....	....	....	12	....	....	....	....
Shannonville	....	....	....	....	....	....	....	....	20	....	10	....	....
Trenton	24	....	6	....	12	20	6	....	30	....	....	....	....
Tweed	....	....	....	16	....	....	....	....	....	....	....	....	....
Huron—													
Blyth	....	....	....	....	....	5	....	....	95	....	....	....	....
Brussels	....	....	....	2	....	....	....	....	....	....	....	....	....
Crediton	....	....	....	....	24	....	....	....	....	....	....	....	....
Exeter	....	....	....	....	12	....	....	....	....	....	....	....	....
Goderich	3	....	....	12	12	5	6	....	6	....	90	....	....
Seaforth	7	....	1	....	6	5	6	....	....	....	....	....	....
Wingham	1	....	1	....	30	5	6	....	....	....	....	....	....
Wroxeter	....	....	....	....	....	....	....	....	12	182	50	....	....
Kenora—													
Dryden	....	....	....	....	....	....	....	....	....	95	....	....	....
Kenora	....	....	....	....	....	....	....	....	....	504	....	....	....
Sioux Lookout	....	....	....	6	....	....	....	....	....	....	....	....	....
Kent—													
Blenheim	6	....	....	....	....	....	54	....	82	....	65	....	....
Chatham	168	....	....	108	468	40	40	....	80	244	170	....	....
Dresden	....	....	....	....	....	....	....	....	175	20	50	....	....
Highgate	....	....	....	1	....	....	....	....	....	....	....	....	....
Ridgetown	....	....	....	....	30	35	6	....	....	....	....	....	....
Thamesville	12	....	....	....	24	20	12	....	....	92	45	....	....
Tilbury	10	....	....	....	....	....	....	....	....	168	60	....	....
Wallaceburg	....	....	....	4	....	....	....	....	12	30	60	....	....
Lambton—													
Bothwell	....	....	....	....	....	....	....	....	50	....	....	....	....
Camlachie	....	....	....	....	....	....	....	....	12	....	5	....	....
Forest	....	....	....	....	18	....	....	....	....	....	....	....	....
Inwood	....	....	....	....	12	10	....	....	....	....	....	....	....
Oil Springs	....	....	....	....	....	....	12	....	6	....	....	....	....
Petrolia	3	....	....	....	....	....	....	....	69	....	....	....	....
Sarnia	84	....	....	60	36	....	24	....	84	....	60	1	24
Thedford	....	....	....	....	12	....	....	....	6	10	5	....	....
Watford	....	....	....	....	12	....	....	....	25	83	....	....	....
Wyoming	....	....	....	....	18	....	18	....	18	....	....	....	....
Lanark—													
Almonte	18	....	....	....	....	....	....	....	....	....	....	....	....
Carleton Place	12	....	6	44	18	10	18	....	12	56	30	....	....
Lanark	....	....	....	....	....	....	....	....	64	....	....	....	....
McDonald's Corn'rs	....	....	....	....	....	....	....	....	18	....	....	....	....
Pakenham	....	....	....	....	12	10	....	....	50	....	....	....	....
Perth	....	....	....	....	....	10	....	....	....	....	....	....	....
Smith's Falls	72	....	....	....	....	....	36	....	136	70	....	....	....
Leeds—													
Athens	....	....	....	....	....	....	....	....	12	28	10	....	....
Brockville	6	6	6	....	30	20	....	....	12	....	161	....	....

YEARLY REPORT.

Outfits, Vaccines and Treatments supplied by Laboratory at Toronto during the year 1919.—Continued.

Municipalities	Outfits sent out.								Doses of Typhoid-paratyphoid Vaccine supplied	Whooping Cough Vaccine	Silver nitrate for prevention of Ophthalmia	Pasteur preventive treatment	
	Syphilis (Wassermann)	Syphilis (Treponema Pallida)	Gonorrhea	Water	Diphtheria	T.B.	Typhoid	Total				cases	No. of Injections
Leeds—Con.													
Elgin	....	....	....	....	....	10	....	....	6	42	....	....	....
Newboro	....	....	....	....	....	....	....	....	....	70	....	....	....
Lennox and Addington—													
Napanee	....	....	....	....	24	....	....	....	6	48	....	....	....
Odessa	....	....	....	....	....	....	....	....	....	35	....	....	....
Tamworth	....	....	....	....	....	....	....	....	....	30	....	....	....
Lincoln—													
Beamsville	10	....	9	2	30	5	18	....	....	30	....	....	....
Grimsby	6	....	....	12	12	5	12	....	....	14	15	....	....
Jordan	....	....	....	....	....	....	....	....	185	....	....	....	....
Niagara-on-Lake	....	....	....	....	....	....	....	....	55	70	10	....	....
Port Dalhousie	....	....	....	1	6	....	....	....	....	....	....	....	....
St. Davids	6	....	6	....	....	....	....	....	....	10	10	....	....
St. Catharines	217	3	6	48	264	110	48	....	....	175	135	....	....
Smithville	....	....	....	6	....	....	6	....	20	....	....	....	....
Middlesex—													
Glencoe	....	....	....	1	....	....	....	....	....	....	....	....	....
London	400	....	100	....	....	200	....	....	....	765	440	....	....
Melborne	....	....	....	....	....	....	....	....	65	....	....	....	....
Strathroy	....	....	....	4	....	10	6	....	12	....	....	....	....
Muskoka—													
Bala	....	....	....	....	....	....	....	....	....	70	60	....	....
Bracebridge	12	....	....	....	18	25	6	....	60	....	....	....	....
Gravenhurst	30	....	....	4	....	120	....	....	24	118	15	....	....
Huntsville	3	....	3	....	24	5	....	....	....	10	....	....	....
Port Sydney	....	....	....	2	....	....	....	....	....	....	....	....	....
Torrance	....	....	....	10	....	....	....	....	....	....	....	....	....
Vankeughnet	....	....	....	....	....	....	....	....	6	14	5	....	....
Nipissing—													
Alderdale	....	....	....	....	....	....	....	....	18	....	....	....	....
Mattawa	....	....	....	....	....	....	18	....	18	....	....	....	....
North Bay	54	4	30	....	48	20	42	....	....	999	15	....	....
Sturgeon Falls	....	....	24	....	48	25	....	....	....	144	....	....	....
Norfolk—													
Delhi	14	....	....	4	12	20	....	....	....	....	10	....	....
Langton	....	....	....	....	....	5	....	....	....	42	25	....	....
La Salette	....	....	....	2	....	....	....	....	....	....	....	....	....
Port Dover	12	....	11	....	20	18	....	30	....	....	....	....	....
Port Rowan	....	....	....	....	....	10	6	....	72	....	10	....	....
Simcoe	70	....	....	18	96	85	48	....	74	....	30	....	....
Vittoria	....	....	....	....	....	....	....	....	10	....	....	....	....
Northumberland—													
Brighton	....	....	....	....	84	....	....	....	....	....	....	....	....
Campbellford	....	....	....	....	....	15	....	....	....	....	10	....	....
Castleton	1	1	1	....	6	5	6	....	10	14	15	....	....
Cobourg	78	....	18	....	162	135	144	....	....	54	120	8	192
Colborne	....	....	6	....	....	....	....	....	....	50	....	....	....
Grafton	....	....	....	6	36	5	....	....	....	....	....	....	....
Markworth	....	....	....	....	....	10	....	....	....	10	10	....	....
Ontario—													
Beaverton	....	....	....	1	6	5	24	....	....	....	....	....	....
Brooklin	12	....	....	11	6	10	6	....	20	....	....	....	....
Brougham	....	....	....	....	....	....	....	....	18	....	....	....	....

YEARLY REPORT.

Outfits, Vaccines and Treatments supplied by Laboratory at Toronto during the year 1919.—Continued.

Municipalities	Outfits sent out								Doses of Typhoid-paratyphoid Vaccine supplied	Whooping Cough Vaccine	Silver nitrate for prevention of Ophthalmia	Pasteur preventive treatment	
	Syphilis (Wassermann)	Syphilis (Treponema Pallida)	Gonorrhea	Water	Diphtheria	T.B.	Typhoid	Total				cases	No. of Injections
Ontario—Con.													
Cannington				2	24	10	12						
Claremont	3		3		6	5	6		6	14	5		
Oshawa	92		11	238	648	65			106	411	40		
Port Perry	6		6				24		24	30	15		
Sunderland				14					48	80			
Uxbridge	1	1	1	1	6	15	18		18				
Whitby	12			6									
Oxford—													
Drumbo	12			3									
Embro							6						
Ingersoll				10	12	10	12						
Norwich						10							
Otterville	8			12					12	42	40		
Princeton				2									
Tavistock					12	5	6						
Tillsonburg	6			8	12	20	12		20				
Woodstock				12	84	210	216		36				
Parry Sound—													
Burk's Falls									22	252			
Byng Inlet	1	1	1	4	6	5	6		12	20	15		
Callander									42	180	5		
Depot Harbour	12						12						
Fairholme				2									
Glen Allen											5		
Kearney	7	1	7		30	5	18		106	50	30		
Pakesley				1					10				
Parry Sound	44		18	1	12	50	30		6		240		
Pickerel Landing				3									
Powassan					12	10	24		51				
Rosseau						5					5		
South River	1	1	1		6	5	6						
Sprucedale									10		15		
Sundridge	8		20			15	18		60				
Peel—													
Alton	1	1	1		6	10	6				10		
Bolton	6		2	6	18	10	12		10	107	10		
Brampton	6		6	27	162	40	36						
Caledon				6		5							
Caledon East									6	14	10		
Cooksville				6									
Georgetown					18		6						
Palgrave											30		
Port Credit				1	48	5			6				
Streetsville							12			64			
Perth—													
Atwood				4	18	5					15		
Listowel	1	1	1		6	15	6		6	14	10		
Milverton					12	10							
Mitchell					36	5			22	20	5		
St. Mary's									24				
Stratford	8			12	142	55	12		24	14	110		
Peterboro—													
Bailieboro						15							
Havelock									6		25		

YEARLY REPORT.

Outfits, Vaccines and Treatments supplied by Laboratory at Toronto during the year 1919.—Continued

Municipalities	Outfits sent out								Doses of Typhoid-paratyphoid Vaccine supplied	Whooping Cough Vaccine	Silver nitrate for prevention of Ophthalmia	Pasteur preventive treatment	
	Syphilis (Wassermann)	Syphilis (Treponema Pallida)	Gonorrhea	Water	Diphtheria	T.B.	Typhoid	Total				cases	No. of Injections
Peterboro—Con.													
Keene	....	....	....	....	....	....	....	....	....	10	....	....	....
Peterboro	56	6	25	1	486	80	12	....	94	362	325	....	....
South Monaghan	....	....	....	....	....	....	24	....	....	....	....	....	....
Prescott—													
Fournier	....	....	....	....	....	....	....	....	....	10	....	....	....
Hawkesbury	6	....	....	....	24	20	....	....	90	10	240	....	....
Plantagenet	....	....	....	....	....	10	....	....	....	....	....	....	....
Prince Edward—													
Bloomfield	....	....	....	....	12	....	....	....	....	....	20	....	....
Consecon	....	....	....	....	6	5	6	....	6	....	....	....	....
Demorestville	....	....	....	....	....	....	....	....	12	....	....	....	....
Picton	....	....	....	....	12	10	6	....	56	....	....	....	....
Wellington	6	....	....	6	....	10	....	....	....	....	10	....	....
Rainy River—													
Emo	....	....	....	....	....	....	....	....	50	....	....	....	....
Ft. Frances	12	....	....	20	36	20	....	....	12	370	25	....	....
Rainy River	....	....	....	....	....	....	....	....	75	....	....	....	....
Renfrew—													
Arnprior	76	....	....	....	....	....	....	....	....	....	....	....	....
Cobden	....	....	....	....	....	10	....	....	....	....	....	....	....
Eganville	....	....	....	1	....	5	....	....	6	150	70	....	....
Pembroke	....	....	12	....	72	....	....	....	....	253	....	....	....
Renfrew	....	....	....	6	....	5	36	....	36	....	....	....	....
Russell—													
Bourget	....	....	....	3	....	....	12	....	12	280	45	....	....
Rockland	....	....	....	....	....	10	....	....	....	....	....	....	....
Simcoe—													
Barrie	48	....	24	....	....	50	36	....	60	250	250	....	....
Bradford	....	....	....	2	....	....	....	....	....	....	....	....	....
Churchill	6	....	....	3	12	15	12	....	....	....	....	....	....
Coldwater	21	1	1	....	18	15	18	....	450	10	35	....	....
Colgan	....	....	....	....	....	....	....	....	....	28	10	....	....
Collingwood	156	....	....	20	60	60	30	....	....	122	120	....	....
Cookstown	6	....	....	....	....	5	....	....	....	....	....	....	....
Creemore	....	....	....	....	12	....	....	....	10	60	....	....	....
Edgar	....	....	....	....	18	....	36	....	12	....	....	....	....
Elmvale	1	1	1	....	6	15	6	....	10	....	....	....	....
Everett	....	....	....	....	....	....	....	....	....	28	....	....	....
Lisle	....	....	....	1	....	....	....	....	....	....	....	....	....
Midland	55	....	....	....	42	....	....	....	52	60	20	....	....
Orillia	24	....	6	175	288	20	18	....	30	....	10	....	....
Phelpston	....	....	....	....	12	5	....	....	....	....	....	....	....
Stayner	16	3	6	10	18	25	12	....	30	160	25	....	....
Victoria Harbor	12	....	....	19	36	30	36	....	60	....	....	....	....
Stormont—													
Aultsville	....	....	....	....	....	....	....	....	....	30	10	....	....
Cornwall	8	....	....	....	....	10	....	....	71	20	10	....	....
Crysler	....	....	....	....	....	....	....	....	50	....	5	....	....
Mille Roches	....	....	....	....	....	....	....	....	....	....	20	....	....
Sudbury—													
Burwash	572	24	98	....	12	25	22	....	36	....	30	....	....
Capreole	1	1	1	8	6	5	6	....	18	42	30	....	....
Chapleau	15	1	1	6	6	5	6	....	....	....	....	....	....
Coniston	....	....	....	....	....	15	6	....	....	....	5	....	....

YEARLY REPORT.

Outfits, Vaccines and Treatments supplied by Laboratory at Toronto during the year 1919.—Continued.

Municipalities	Outfits sent out								Doses of Typhoid-paratyphoid Vaccine supplied	Whooping Cough Vaccine	Silver nitrate for prevention of Ophthalmia	Pasteur preventive treatment	
	Syphilis (Wassermann)	Syphilis (Treponema Pallida)	Gonorrhea	Water	Diphtheria	T.B.	Typhoid	Total				cases	No. of Injections
Sudbury—Con.													
Copper Cliff	12	....	8	42	36	25	48	....	45	160	....	....	....
Creighton Mines	....	....	....	....	12	10	12	....	....	....	10	....	....
Espanolia	....	....	....	12	....	5	....	....	....	....	....	....	....
Massey	5	....	10	....	24	10	....	....	....	1,287	....	....	....
Sellwood	....	....	....	16	....	....	....	....	....	....	....	....	....
Sudbury	152	....	18	122	12	30	72	....	340	200	91	....	....
Turbine	18	....	....	....	....	....	....	....	....	....	....	....	....
Webbwood	4	....	....	....	....	....	....	....	....	....	10	....	....
Worthington	....	....	....	18	....	....	24	....	....	240	....	....	....
Thunder Bay—													
Fort William	72	....	....	....	....	....	72	....	72	....	....	....	....
Jellicoe	....	....	....	6	....	....	....	....	....	....	....	....	....
Port Arthur	18	....	....	....	....	....	....	....	72	....	310	....	....
White River	6	....	....	....	....	....	....	....	12	....	....	....	....
Timiskaming—													
Charlton	....	....	....	....	....	....	....	....	75	475	25	....	....
Cobalt	42	....	....	66	....	30	12	....	....	50	60	....	....
Cochrane	86	2	30	....	150	70	42	....	18	268	140	....	....
Elk Lake	....	....	....	....	....	....	....	....	....	....	20	....	....
Englehart	12	12	24	....	....	15	....	....	....	....	....	....	....
Gowganda	....	....	....	6	....	....	....	....	20	40	10	....	....
Haileybury	16	....	15	....	....	25	....	....	....	....	....	....	....
Iroquois Falls	6	....	....	93	....	....	....	....	....	40	....	....	....
Kapuskasing	18	....	48	....	36	120	24	....	....	....	120	....	....
Kirkland Lake	....	....	....	6	12	....	....	....	....	....	15	....	....
New Liskeard	78	....	....	12	....	10	6	....	30	....	....	....	....
North Cobalt	....	....	....	....	....	5	....	....	....	....	....	....	....
Schumacher	....	....	....	....	....	....	....	....	30	30	....	....	....
Smooth Rock Falls	12	....	....	....	12	....	....	....	95	....	....	....	....
South Porcupine	18	....	....	2	....	....	....	....	30	126	....	....	....
Swatiska	....	....	....	12	....	....	....	....	....	....	....	....	....
Timmins	8	....	....	20	....	....	24	....	....	....	....	....	....
Whitney	....	....	....	....	....	....	....	....	....	....	10	....	....
Victoria—													
Bobcaygeon	....	....	....	3	....	....	12	....	45	....	5	....	....
Coboconk	....	....	....	....	12	....	....	....	....	....	....	....	....
Fenelon Falls	....	....	....	....	12	10	....	....	....	28	....	....	....
Lindsay	....	....	....	15	....	30	....	....	....	....	....	....	....
Little Britain	....	....	....	....	....	10	12	....	....	....	....	....	....
Omemee	....	....	....	2	....	....	....	....	....	....	....	....	....
Woodville	....	....	....	1	....	....	....	....	36	....	....	....	....
Waterloo—													
Ayr	....	....	....	....	12	10	12	....	6	....	10	....	....
Elmira	....	....	....	....	....	10	....	....	....	....	....	....	....
Galt	22	....	....	7	....	50	....	....	....	163	....	1	24
Hespeler	12	6	....	18	6	5	....	....	6	....	....	....	....
Kitchener	60	....	30	106	....	160	36	....	22	84	115	....	....
Linwood	1	....	....	....	....	30	....	....	....	....	....	....	....
New Dundee	....	....	....	....	....	....	....	....	....	28	10	....	....
New Hamburg	....	....	....	....	....	5	....	....	....	....	....	....	....
Preston	....	....	....	....	....	5	....	....	....	....	130	....	....
Waterloo	....	....	....	....	18	20	....	....	....	....	....	....	....
Wellesley	....	....	....	....	....	....	....	....	6	....	....	....	....
Welland—													
Bridgeburg	....	....	....	6	....	....	....	....	....	....	20	....	....
Chippawa	....	....	....	36	....	....	....	....	20	25	20	....	....

YEARLY REPORT.

Outfits, Vaccines and Treatments supplied by Laboratory at Toronto during the year 1919.—Continued.

Municipalities	Outfits sent out								Doses of Typhoid-paratyphoid Vaccine supplied	Whooping Cough Vaccine	Silver nitrate for prevention of Ophthalmia	Pasteur preventive treatment	
	Syphilis (Wassermann)	Syphilis (Treponema Pallida)	Gonorrhea	Water	Diphtheria	T.B.	Typhoid	Total				cases	No. of Injections
Welland—Con.													
Fenwick	....	....	....	....	....	....	....	....	30	25	....	....	....
Niagara Falls	42	....	42	30	12	25	6	....	....	....	40	....	....
Port Colborne	....	....	....	....	....	10	24	....	48	20	....	....	....
Stevensville	....	....	....	....	12	....	....	....	....	....	....	....	....
Thorold	2	....	....	12	....	....	....	....	....	....	35	....	....
Welland	42	....	....	15	12	20	....	....	142	98	125	....	....
Wellington—													
Alma	....	....	....	....	....	....	6	....	18	....	....	....	....
Arthur	....	....	....	....	24	10	....	....	....	14	15	....	....
Conn	....	....	....	....	....	....	....	....	6	42	15	....	....
Drayton	18	....	....	2	12	5	....	....	....	....	30	....	....
Elora	....	....	....	24	24	20	24	....	20	....	....	....	....
Erin	....	....	....	6	12	....	....	....	....	....	....	....	....
Fergus	....	....	....	....	....	10	....	....	....	....	....	....	....
Glen Allen	....	....	....	....	....	....	....	....	6	6	....	....	....
Guelph	243	1	1	92	150	15	66	....	62	535	5	....	....
Harriston	8	....	....	....	18	....	....	....	....	150	30	....	....
Hillsburg	6	....	6	3	....	10	....	....	....	....	10	....	....
Moorefield	....	....	....	4	12	10	....	....	....	....	....	....	....
Mount Forest	....	....	....	....	12	15	....	....	....	83	5	....	....
Palmerston	4	....	....	....	24	....	....	....	20	....	10	....	....
Rockwood	....	....	....	....	....	....	....	....	18	....	....	....	....
Wentworth—													
Dundas	6	....	....	24	12	5	....	....	....	....	....	....	....
Freelton	....	....	....	....	....	....	....	....	....	84	....	....	....
Hamilton	532	....	....	2	24	30	24	....	394	402	1,465	1	24
Lynden	....	....	....	6	....	....	....	....	....	....	....	....	....
Stony Creek	....	....	....	....	12	....	....	....	....	....	....	....	....
Waterdown	....	....	....	12	....	....	....	....	....	....	....	....	....
York—													
Agincourt	4	....	....	3	6	5	....	....	18	....	....	....	....
Aurora	....	....	....	....	1,248	5	6	....	....	134	15	....	....
Downsview	....	....	....	1	....	....	....	....	....	....	....	....	....
Humber Bay	....	....	....	1	....	....	....	....	....	....	....	....	....
Islington	....	....	....	12	....	....	....	....	....	....	....	....	....
Keswick	....	....	....	....	....	....	6	....	12	....	....	....	....
King	....	....	....	....	18	....	....	....	....	....	....	....	....
Lambton Mills	....	....	....	....	....	....	....	....	....	....	15	....	....
Long Branch	9	....	....	5	12	5	....	....	....	20	10	....	....
Markham	....	....	....	....	....	....	....	....	....	....	15	....	....
Mimico	....	....	....	....	462	30	60	....	306	50	....	....	....
Mimico Beach	12	....	....	....	....	....	....	....	....	....	....	....	....
Mount Dennis	....	....	....	....	....	....	6	....	....	....	....	....	....
Newmarket	36	....	....	4	18	5	....	....	43	68	10	....	....
New Toronto	5	....	12	....	24	10	12	....	12	122	15	....	....
Queensville	....	....	....	....	....	....	....	....	....	84	....	....	....
Richmond Hill	....	....	....	1	48	10	....	....	....	....	....	....	....
Roche's Point	....	....	....	1	....	....	....	....	....	....	....	....	....
Scarboro'	....	....	....	6	....	....	....	....	....	....	....	....	....
Stouffville	....	....	....	....	12	10	....	....	....	....	....	....	....
Sutton	....	....	....	....	....	....	....	....	....	10	....	....	....
Sutton West	....	....	....	12	....	....	6	....	....	....	....	....	....
Swansea	....	....	....	....	6	....	....	....	....	82	....	....	....
Thornhill	....	....	....	....	....	....	....	....	....	....	25	....	....
Todmorden	....	....	....	....	42	....	....	....	....	....	....	....	....
Toronto	1470	29	338	71	150	100	48	....	2,615	12980	365	10	240

YEARLY REPORT.

Outfits, Vaccines and Treatments supplied by Laboratory at Toronto during the year 1919.—Concluded.

Municipalities.	Outfits sent out								Doses of Typhoid-paratyphoid Vaccine supplied	Whooping Cough Vaccine	Silver nitrate for prevention of Ophthalmia	Pasteur preventive treatment	
	Syphilis (Wassermann)	Syphilis (Treponema Pallida)	Gonorrhea	Water	Diphtheria	T.B.	Tpyhoid	Total				cases	No. of Injections
York—Con.													
Unionville	....	....	....	6	12	10	....	....	....	....	....	....	....
West Hill	....	....	....	1	....	....	....	....	....	....	....	....	....
Weston	....	....	....	12	....	35	....	....	18	....	....	....	....
Willowdale	....	....	....	....	12	....	....	....	....	....	....	....	....
Woodbridge	....	....	....	6	....	....	....	....	....	....	....	....	....
Quebec—													
Douglastown	....	....	....	....	....	....	....	....	....	....	5	....	....
Militia Orders—													
Ottawa	....	....	....	....	....	....	....	....	2,750	....	....	....	....
Toronto	....	....	....	....	....	....	....	....	1,300	....	....	....	....
Winnipeg	....	....	....	....	....	....	....	....	2,650	....	....	....	....
Totals	9,224	247	1.604	2,633	10,640	6,035	2,792	...	28,545	32,963	11,667	23	552

Grand Total, 106,925.
Influenza Vaccine, 2,700

REPORT OF THE BRANCH LABORATORY OF THE BOARD AT LONDON (INSTITUTE OF HEALTH)

The number of examinations made by the Branch Laboratory of the Provincial Board of Health at London (Institute of Public Health) in 1919 were as per table:

Diphtheria:—		
Swabs for Release		874
Positive	227	
Negative	647	
Swabs for Diagnosis		2,066
Positive	231	
Negative	1,835	
Sputum for Tubercle Bacilli		929
Positive	158	
Negative	771	
Blood for Typhoid Reaction		199
Positive	63	
Negative	136	
Colloidal Gold Reaction		72
Syphilis—Wassermann Reaction		2,916
Very Strongly Positive	741	
Strongly Positive	178	
Positive	59	
Negative	1,938	
Treponema Pallida		6
Positive	1	
Negative	5	
Gonorrhea		218
Positive	64	
Negative	154	
Rabies Diagnosis		1
Food Contents		604
Milk for Examination:—		
Tubercle Bacilli Negative	1	
Pus Cells Positive	1	
Count	573	575
Water for Bacteriological Examinations		585
Liquors for Examination		2
Miscellaneous Specimens		1,178
Total		10,225

REPORT FROM LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH OF

Municipalities	Diphtheritic Swabs.				Tuberculous Sputa		Typhoid Bloods.		Syphilis						
	Release		Diagnosis						Wassermann Reaction					Treponema Pallida.	
	+	—	+	—	+	—	+	—	Colloidal Gold Reaction	Very Strongly Positive	Strongly Positive	+	—	+	—
Brant—															
Brantford	....	....	....	....	2	3	....	....	....	....	1	....	....	....	....
Paris	....	....	....	....	1	5	....	....	....	....	....	....	....	....	....
Bruce—															
Lucknow	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....
Mildmay	....	....	....	....	2	1	....	....	....	....	....	....	....	....	....
Paisley	....	....	....	....	....	....	2	1	....	....	....	....	....	....	....
Port Elgin	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Teeswater	....	....	1	1	....	3	....	....	....	....	....	....	....	....	....
Walkerton	....	....	....	1	....	2	....	1	....	....	....	....	....	....	....
Carleton—															
Ottawa	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Durham—															
Millbrook	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Elgin—															
Aylmer	....	....	....	....	1	....	....	....	....	1	....	....	2	....	....
Dutton	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Shedden	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
St. Thomas	....	....	....	....	1	....	....	....	1	11	1	1	26	....	....
Wallacetown	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....
West Lorne	....	....	....	....	....	2	3	....	....	....	....	....	....	....	....
Essex—															
Belle River	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....
Comber	....	....	....	....	3	6	....	2	....	....	....	....	....	....	....
Essex	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Kingsville	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Leamington	....	....	....	....	1	5	....	....	....	....	....	....	....	....	....
Stoney Point	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Walkerville	....	....	....	....	....	6	....	....	....	6	....	1	21	....	....
Windsor	....	....	....	....	1	....	....	....	....	4	2	....	9	....	....
Grey—															
Clarksburg	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Haldimand—															
Dunnville	....	....	....	....	1	2	4	7	....	....	....	....	....	....	....
Halton—															
Christie	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....
Huron—															
Blyth	....	....	....	1	1	7	....	....	....	1	....	....	3	1	1
Clinton	....	....	....	....	1	....	....	....	....	....	....	....	1	....	....
Crediton	....	....	1	....	....	1	....	....	....	....	....	....	....	....	....
Exeter	....	1	....	....	....	2	....	....	....	....	....	....	....	....	....
Goderich	....	2	....	5	3	1	1	....	....	....	....	....	3	....	....
Hensall	....	....	....	3	1	6	....	....	....	....	....	....	....	....	....
Kintail	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....
Kirkton	....	3	3	10	....	2	....	....	....	....	....	....	....	....	....
Seaforth	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Wingham	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Zurich	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Kent—															
Blenheim	....	....	....	4	10	16	1	2	....	7	1	....	1	....	....
Chatham	....	4	4	49	8	22	3	8	....	10	2	....	29	....	....
Dresden	....	....	....	....	....	8	1	5	....	....	....	....	1	....	....
Duart	....	....	....	....	2	3	....	1	....	....	....	....	....	....	....
Merlin	....	....	....	6	....	1	....	....	....	1	....	....	5	....	....
Ridgetown	3	8	8	19	1	9	1	2	....	1	....	....	1	....	....
Thamesville	....	....	1	10	3	7	....	1	....	....	....	....	....	....	....
Wallaceburg	....	....	....	....	....	....	....	....	....	5	1	....	2	....	....

ONTARIO AT LONDON FOR THE YEAR 1919.—SPECIMENS EXAMINED.—*Con.*

Gonorrhea		Rabies Diagnosis				Milk											Waters		Liquors for License Department	Miscellaneous Specimens	Total for Year
			Negri Bodies			Food Content		Preserv-atives		Bacteriological											
										Tubercle Bac.		Pus Cells									
+	−	Animal	+	−	Animal Inoculations	Fats	Total Solids	+	−	+	−	+	−	Count	Extraneous Matter	Number of Milk Samples	Chemical	Bacterial			
..	1	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	1	8
1	1	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	....	8
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	....	2
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	....	3
..	..	....	....	....	....	....	....	..	..	....	1	1	....	1	....	....	....	....	....	....	6
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	1	1
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	....	5
..	2	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	....	6
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	1	1
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	1	2
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	6	6	....	....	16
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	....	1
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	....	1
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	2	43
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	....	2
..	1	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	....	6
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	....	1
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	1	12
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	....	1
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	4	4	....	....	9
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	2	8
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	....	1
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	....	34
1	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	....	17
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	1	1	....	....	2
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	2	1	....	2	19
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	....	1
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	....	15
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	....	2
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	1	3
1	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	....	4
3	3	....	....	....	....	14	....	..	..	....	....	....	....	10	....	....	3	2	....	1	51
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	....	10
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	....	1
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	....	18
..	3	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	2	6
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	1	1	....	....	3
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	3	3	....	....	6
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	....	42
3	3	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	156	260	....	2	563
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	3	3	....	....	21
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	....	6
..	1	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	1	15
..	1	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	2	2	....	4	62
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	1	23
..	2	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	....	10

REPORTS FROM LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH OF

Municipalities.	Diphtheritic Swabs				Tuberculous Sputa.		Typhoid Bloods		Syphilis.						
	Release		Diagnosis							Wassermann Reaction				Treponema Pallida	
	+	−	+	−	+	−	+	−	Colloidal Gold Reaction	Very Strongly Positive	Strongly Positive	+	−	+	−
Kent—Continued															
Wheatley	....	....	....	....	....	....	2	1	....	....	....	....	....	....	....
Lambton—															
Alvinston	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Arkona	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Bridgen	....	....	1	....	....	1	....	....	....	....	....	....	....	....	....
Camlachie	....	....	2	2	....	3	2	2	....	....	....	....	....	....	....
Courtright	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....
Florence	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....
Forest	....	....	....	....	....	1	....	....	....	....	....	....	1	....	....
Inwood	....	....	....	1	1	2	....	1	....	....	....	....	....	....	....
Mooretown	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Petrolia	....	....	....	4	2	18	4	4	....	....	....	....	....	....	....
Pt. Lambton	....	....	....	....	....	....	2	2	....	....	....	....	....	....	....
Sarnia	1	4	6	11	5	15	....	1	....	3	....	....	14	....	....
Thedford	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Watford	2	3	1	3	4	5	....	....	....	....	....	....	1	....	....
Wyoming	1	3	2	2	....	2	1	2	....	....	....	....	....	....	....
Lincoln—															
St. Catharines	....	....	....	....	....	....	....	....	....	2	....	....	8	....	....
Middlesex—															
Adelaide	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
Ailsa Craig	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Arva	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Belmont	....	....	....	1	2	1	....	....	....	1	....	....	....	....	....
Byron	....	1	1	5	6	42	....	....	....	7	....	....	13	....	....
Dorchester	....	1	....	2	....	....	....	....	....	....	....	1	1	....	....
Glencoe	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....
Granton	....	....	....	6	1	2	....	1	....	....	....	....	....	....	....
Harrietsville	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....
Hyde Park	....	....	....	....	....	1	....	....	....	....	....	....	1	....	....
Kilsworth	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....
Komoka	....	....	....	....	9	....	....	....	....	....	....	....	....	....	....
Lambeth	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....
London	212	581	180	1321	39	453	10	40	55	589	148	53	1509	....	....
Lucan	....	....	1	3	....	....	1	2	....	....	....	....	....	....	....
Melbourne	....	....	....	....	....	1	2	2	....	....	....	....	....	....	....
Mt. Brydges	7	15	7	272	....	2	1	1	....	....	....	....	....	....	....
Newbury	....	....	....	1	2	4	....	....	....	....	....	....	....	....	....
Parkhill	....	....	....	....	6	9	1	2	....	....	....	....	....	....	....
Strathroy	....	....	....	2	2	12	1	1	....	....	....	....	1	....	....
Thorndale	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Wardsville	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....
Wilton Grove	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....
Muskoka—															
Severn Bridges	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....
Norfolk—															
Simcoe	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Ontario—															
Whitby	....	....	....	....	....	....	....	....	....	1	....	....	1	....	....
Oxford—															
Burgessville	....	....	....	....	....	5	....	2	....	....	....	....	....	....	....
Drumbo	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Embro	....	....	....	....	1	....	1	6	....	....	....	....	....	....	....
Ingersoll	....	....	....	8	1	12	9	10	....	1	1	....	4	....	2

ONTARIO AT LONDON FOR THE YEAR 1919—SPECIMENS EXAMINED.—*Con.*

Gonorrhea.		Rabies Diagnosis.				Milk.											Waters.		Liquors for License Dept.	Miscellaneous Specimens	Total for Year
			Negri Bodies		Animal Inoculations	Food Content.		Preservatives		Bacteriological.				Count	Extraneous Matter	Number of Milk Samples	Chemical	Bacterial			
										Tubercle Bac.		Pus Cells									
+	−	Animal	+	−		Fats	Total Solids	+	−	+	−	+	−								
																					3
																				1	1
																					1
																					2
																					11
																					2
																	1	1			4
																	2	2			6
	1																				6
																	1	1			2
1	6																			1	40
																					4
3	12													11			3	3		2	94
1	2																				3
																				1	20
																					13
																					10
																					1
																	1	1			2
																	2	2			4
																					5
	1				4															10	90
																					5
																					1
																					10
																					2
																				4	6
																					1
																					9
																					2
35	99				586									550			38	18	2	1088	7606
	1																				8
4	1																6	6			22
																	4	4			313
1	1																			3	12
3		dog		1																2	24
	2																1	1		5	27
																	1	1			2
																				1	2
																					1
																					2
1	1																				3
																					2
																					7
																	4	4			8
																					8
														1						5	54

REPORT FROM LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH OF

Municipalities	Diphtheritic Swabs				Tuberculous Sputa		Typhoid Bloods		Syphilis						
	Release		Diagnosis							Wassermann Reaction				Treponema Pallida	
	+	−	+	−	+	−	+	−	Colloidal Gold Reaction	Very Strongly Positive	Strongly Positive	+	−	+	−
Oxford—Continued.															
Innerkip	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Lakeside	....	....	....	....	....	3	....	1	....	....	....	....	....	....	....
Plattsville	....	....	....	7	....	....	....	....	....	....	....	....	....	....	....
Tavistock	....	1	....	1	....	....	....	....	....	....	....	....	....	....	....
Thamesford	....	....	1	1	....	1	1	....	....	....	....	....	....	....	....
Tillsonburg	....	....	....	1	....	3	....	....	....	2	....	....	....	....	....
Woodstock	1	7	6	31	1	3	1	3	....	11	5	....	22	....	2
Peel—															
Alton	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....
Perth—															
Listowel	....	....	....	....	1	4	....	2	....	....	....	....	2	....	....
Milverton	....	....	....	....	1	....	....	....	....	....	....	....	1	....	....
Mitchell	....	....	....	1	....	....	2	1	....	2	2	....	1	....	....
Monkton	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
St. Mary's	....	8	....	9	3	2	3	11	....	....	....	....	1	....	....
Stratford	....	1	4	21	20	20	....	4	4	19	2	....	41	....	....
Peterboro—															
Peterboro	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
Rainy River—															
Emo	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....
Simcoe—															
Midland	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Timiskaming—															
Smooth Rock Falls	....	....	....	....	....	1	1	....	....	....	....	....	3	....	....
Waterloo—															
Baden	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Galt	....	....	....	....	....	1	....	....	....	....	....	....	7	....	....
Kitchener	....	....	....	1	....	5	2	1	....	34	10	3	145	....	....
New Dundee	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
Preston	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....
St. Jacobs	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....
Wellington—															
Alma	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Arthur	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Drayton	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....
Guelph	....	....	....	....	....	1	....	....	8	19	2	....	49	....	....
Mount Forest	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....
Palmerston	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
York—															
Agincourt	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....
Toronto	....	....	....	....	....	....	....	....	4	....	....	....	4	....	....
Grand Total	227	647	231	1835	158	771	63	136	72	741	178	59	1938	1	5

ONTARIO AT LONDON FOR THE YEAR 1919.—SPECIMENS EXAMINED.—*Con.*

Gonorrhea		Rabies Diagnosis				Milk											Waters		Liquors for License Dept.	Miscellaneous Specimens	Total for Year
		Animal	Negri Bodies		Animal Inoculations	Food Content		Preservatives		Bacteriological				Count	Extraneous Matter	Number of Milk Samples	Chemical	Bacterial			
+	−		+	−		Fats	Total Solids	+	−	Tubercle Bac.		Pus Cells									
										+	−	+	−								
..	...	....	....	....	....	....	....	..	..	....	....	....	....	...	...	....	....	....	..	....	1
..	...	....	....	....	....	....	....	..	..	....	....	....	....	...	...	....	....	....	..	....	4
..	...	....	....	....	....	....	....	..	..	....	....	....	....	...	...	....	....	....	..	....	7
..	...	....	....	....	....	....	....	..	..	....	....	....	....	...	...	....	1	1	..	3	7
..	...	....	....	....	....	....	....	..	..	....	....	....	....	...	...	....	....	....	..	2	6
..	...	....	....	....	....	....	....	..	..	....	....	....	....	...	...	....	....	....	..	1	7
..	...	....	....	....	....	....	....	..	..	....	....	....	....	...	...	....	1	1	..	2	97
..	...	....	....	....	....	....	....	..	..	....	....	....	....	...	...	....	....	....	..	....	1
..	1	....	....	....	....	....	....	..	..	....	....	....	....	...	...	....	....	....	..	....	10
..	...	....	....	....	....	....	....	..	..	....	....	....	....	...	...	....	....	....	..	....	2
2	...	....	....	....	....	....	....	..	..	....	....	....	....	...	...	....	....	....	..	....	11
..	...	....	....	....	....	....	....	..	..	....	....	....	....	...	...	....	....	....	..	....	1
..	1	....	....	....	....	....	....	..	..	....	....	....	....	...	...	....	3	2	..	....	43
4	6	....	....	....	....	....	....	..	..	....	....	....	....	...	...	....	....	....	..	8	154
..	...	....	....	....	....	....	....	..	..	....	....	....	....	...	...	....	....	....	..	3	4
..	...	....	....	....	....	....	....	..	..	....	....	....	....	...	...	....	....	....	..	....	2
..	...	....	....	....	....	....	....	..	..	....	....	....	....	...	...	....	....	....	..	....	1
..	...	....	....	....	....	....	....	..	..	....	....	....	....	...	...	....	....	....	..	....	5
..	...	....	....	....	....	....	....	..	..	....	....	....	....	...	...	....	....	1	..	....	2
..	1	....	....	....	....	....	....	..	..	....	....	....	....	...	...	....	1	2	..	....	12
..	...	....	....	....	....	....	....	..	..	....	....	....	....	...	...	....	....	....	..	7	208
..	...	....	....	....	....	....	....	..	..	....	....	....	....	...	...	....	....	....	..	....	1
..	...	....	....	....	....	....	....	..	..	....	....	....	....	...	...	....	....	....	..	....	1
..	...	....	....	....	....	....	....	..	..	....	....	....	....	...	...	....	....	....	..	....	1
..	...	....	....	....	....	....	....	..	..	....	....	....	....	...	...	....	....	....	..	1	1
..	...	....	....	....	....	....	....	..	..	....	....	....	....	...	...	....	....	....	..	....	1
..	...	....	....	....	....	....	....	..	..	....	....	....	....	...	...	....	....	....	..	....	1
..	...	....	....	....	....	....	....	..	..	....	....	....	....	...	...	....	....	....	..	3	82
..	...	....	....	....	....	....	....	..	..	....	....	....	....	...	...	....	....	....	..	....	1
..	...	....	....	....	....	....	....	..	..	....	....	....	....	...	...	....	....	....	..	....	1
..	...	....	....	....	....	....	....	..	..	....	....	....	....	...	...	....	....	....	..	....	1
..	...	....	....	....	....	....	....	..	..	....	....	....	....	...	...	....	....	....	..	....	8
64	154	dog	....	1	604	....	....	..	..	....	1	1	....	573	..	....	251	334	2	1178	10,225

REPORT OF THE BRANCH LABORATORY OF THE BOARD AT KINGSTON

The Chairman and Members of the Provincial Board of Health:

GENTLEMEN,—I have the honour to submit the report of the work done in the Local Laboratory of the Provincial Board of Health during the year 1919.

In this year 5,355 specimens were examined as per appended table.

Diphtheria:—		
Swabs for Release from Quarantine		228
Positive	59	
Negative	169	
Swabs for Diagnosis		646
Positive	99	
Negative	547	
Swabs for Tubercle Bacilli		1,219
Positive	148	
Negative	1,071	
Swabs for Typhoid Reaction		298
Positive	37	
Negative	261	
Syphilis—Wassermann Reaction		2,044
Positive	414	
Negative	1,630	
Treponema Pallida		92
Positive	6	
Negative	86	
Gonorrhea		63
Positive	13	
Negative	50	
Water for Bacteriological Analyses		579
Miscellaneous Samples		186
Total		5,355

REPORT FROM BRANCH LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH

Municipalities	Diphtheritic Swabs.				Tuberculous Sputa		Typhoid Bloods.		Syphilis						
	Release		Diagnosis						Wassermann Reaction					Treponema Pallida.	
	+	—	+	—	+	—	+	—	Colloidal Gold Reaction	Very Strongly Positive	Strongly Positive	+	—	+	—
Algoma—															
Foleyet	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....
Bruce—															
Paisley	....	....	....	1	....	....	1	4	....	....	....	....	....	....	....
Carleton—															
Manotick	....	2	1	....	....	1	....	....	....	....	....	....	....	....	....
Metcalfe	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....
Ottawa	....	....	....	....	....	1	....	1	....	16	7	21	310	....	....
Richmond	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....
Dundas—															
Brinston	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Chesterville	....	....	....	....	....	2	....	1	....	....	....	....	....	....	....
Morrisburg	....	....	....	....	....	2	....	1	....	....	....	....	....	....	....
Winchester	....	....	....	....	1	2	....	1	....	....	....	....	....	....	....
Durham—															
Port Hope	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Essex—															
Essex	....	....	....	....	....	1	....	1	....	....	....	....	....	....	....
Dunstan's Block	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
Frontenac—															
Barriefield	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Inverary	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Kingston	23	90	40	267	81	840	8	113	....	124	54	121	1131	6	16
Portsmouth	....	....	8	16	....	2	4	3	....	3	1	4	13	....	....
Sharbot Lake	1	6	1	3	....	....	2	5	....	....	....	....	....	....	....
Sydenham	....	....	....	....	3	....	....	1	....	....	....	....	....	....	....
Verona	....	....	....	....	....	1	....	2	....	....	....	....	....	....	....
Wolfe Island	....	....	....	....	....	4	....	2	....	....	....	....	....	....	....
Glengarry—															
Alexandria	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Dalkeith	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Lancaster	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....
Martintown	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Maxville	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
Williamstown	....	....	....	3	2	4	....	....	....	....	....	....	....	....	....
Grenville—															
Cardinal	....	....	....	....	....	1	....	....	....	....	....	....	4	....	....
Jasper	....	1	1	1	....	2	....	1	....	....	....	....	....	....	....
Kemptville	....	....	....	....	5	....	....	1	....	....	....	....	....	....	....
Merrickville	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
Pittsburg	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Prescott	....	....	....	3	....	2	3	4	....	1	....	....	....	....	....
Spencerville	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....
Hastings—															
Bancroft	....	....	....	....	2	3	....	....	....	....	....	....	....	....	....
Belleville	....	5	1	16	5	22	1	22	....	5	....	4	19	....	....
Deseronto	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....
Fort Stewart	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Madoc	....	....	....	....	....	1	....	1	....	....	....	....	....	....	....
Marlbank	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....
Maynooth	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Read	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....
Roslin	....	....	....	....	....	3	1	5	....	....	....	....	....	....	....
Shannonville	....	....	....	....	3	2	1	1	....	....	....	....	....	....	....
Stirling	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....

OF ONTARIO AT KINGSTON FOR THE YEAR 1919.—SPECIMENS EXAMINED.

Gonorrhea +	Gonorrhea —	Rabies Diagnosis: Animal	Rabies Diagnosis: Negri Bodies +	Rabies Diagnosis: Negri Bodies —	Rabies Diagnosis: Animal Inoculations	Milk: Food Content: Fats	Milk: Food Content: Total Solids	Milk: Preservatives +	Milk: Preservatives —	Milk: Bacteriological: Tubercle Bac +	Milk: Bacteriological: Tubercle Bac —	Milk: Bacteriological: Pus Cells +	Milk: Bacteriological: Pus Cells —	Milk: Bacteriological: Count	Milk: Extraneous Matter	Milk: Number of Milk Samples	Waters: Chemical	Waters: Bacterial	Liquors for License Department	Miscellaneous Specimens	Total for Year
																					1
																		4			10
																					5
																					1
																				1	357
																					1
																					1
																					3
																					3
																				1	5
																					1
																					2
																					1
																		172			172
																					1
10	23																	292		154	3393
	1																	64		1	120
																		1			19
																				1	6
																		2		1	6
																					6
	1																				1
																					1
																		1			3
																					1
																					1
																					9
																		3			8
																					6
																				1	7
																					1
																		2			3
																		5			18
																					1
																					5
2	2																	1		4	109
1																		2			5
																					1
																					2
																					2
																				1	2
																					1
																					9
																					5
																				1	1

REPORT FROM BRANCH LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH

Municipalities	Diphtheritic Swabs.				Tuberculous Sputa		Typhoid Bloods.		Syphilis						
	Release		Diagnosis						Wassermann Reaction					Treponema Pallida.	
	+	−	+	−	+	−	+	−	Colloidal Gold Reaction	Very Strongly Positive	Strongly Positive	+	−	+	−
Hastings—Con.															
Trenton	....	....	....	2	....	....	....	....	....	....	....	....	2	....	....
Tweed	....	....	....	....	4	8	....	3	....	....	....	....	1	....	....
Huron—															
Brussels	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
Kent—															
Blenheim	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Lanark—															
Almonte	....	....	....	....	....	1	....	....	....	....	....	....	2	....	....
Carleton Place	....	....	....	6	....	8	....	1	....	1	4	....	....	....	....
Dalhousie Lake	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
McDonald's Corners	....	....	....	....	1	2	....	1	....	....	....	....	....	....	....
Pakenham	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....
Perth	....	....	....	3	....	....	1	....	....	....	....	....	....	....	....
Smith's Falls	....	....	....	....	1	9	2	12	....	....	....	....	5	....	....
Leeds—															
Brockville	2	1	1	11	3	13	3	6	....	8	3	1	14	....	....
Delta	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Elgin	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....
Gananoque	....	....	1	3	....	5	1	3	....	1	....	....	2	....	....
Lansdowne	....	....	1	8	1	8	....	3	....	....	....	....	....	....	....
Mallorytown	....	....	....	1	....	2	....	2	....	....	....	....	....	....	....
Newboro	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
Seely's Bay	....	1	....	....	1	2	....	....	....	....	....	....	....	....	....
Westport	....	....	1	....	....	1	....	2	....	....	....	....	....	....	....
Lennox and Add'n.															
Adolphustown	....	....	....	....	1	....	....	1	....	....	....	....	....	....	....
Bath	3	5	3	4	....	3	....	5	....	....	....	....	....	....	....
Camden East	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
Flinton	....	....	....	....	....	8	....	4	....	....	....	....	....	....	....
Morven	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Napanee	13	10	23	22	2	11	....	8	....	....	....	....	....	....	....
Newburg	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Odessa	....	....	....	....	....	3	....	4	....	....	....	....	....	....	....
Tamworth	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
Yarker	....	....	....	....	....	....	1	3	....	....	....	....	....	....	....
Northumberland—															
Campbellford	....	....	1	....	....	1	....	....	....	....	....	....	1	....	....
Cobourg	16	40	13	153	....	2	....	....	....	6	2	12	112	....	69
Colborne	1	1	1	3	1	....	....	2	....	....	....	....	....	....	....
Parry Sound—															
Parry Sound	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1
Peterboro—															
Peterboro	....	....	....	....	1	2	....	1	....	....	....	2	....	....	....
Prescott—															
Fournier	....	....	....	1	2	12	....	1	....	....	....	....	....	....	....
Pendleton	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Vankleek Hill	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
Renfrew—															
Arnprior	....	....	....	....	2	1	....	1	....	....	....	....	....	....	....
Calabogie	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Cobden	....	....	1	1	2	7	....	1	....	....	....	....	....	....	....
Forester's Falls	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Killaloe Station	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....
Pembroke	....	....	....	....	11	15	....	....	....	....	....	....	....	....	....
Renfrew	....	6	....	3	3	10	1	3	....	....	....	5	....	....	....

OF ONTARIO AT KINGSTON FOR THE YEAR 1919.—SPECIMENS EXAMINED.—*Con.*

Gonorrhea		Rabies Diagnosis				Milk											Waters		Liquors for License Department	Miscellaneous Specimens	Total for Year
		Animal	Negri Bodies		Animal Inoculations	Food Content		Preservatives		Bacteriological					Extraneous Matter	Number of Milk Samples	Chemical	Bacterial			
										Tubercle Bac		Pus Cells		Count							
+	−		+	−		Fats	Total Solids	+	−	+	−	+	−								
	3																				7
																					16
																					1
																					1
																		1			4
	2																			1	23
																					1
																					4
																				1	2
																		1			5
	1																	1		3	34
																		1		1	68
																		1			1
																					2
																		2			18
	1																			1	23
																					5
																					1
																					4
																					4
																					2
																					23
																					1
																					12
																		1			1
	1																	10			100
																					1
																					7
																				1	2
																		1			5
																					3
	11																	4		8	448
																					9
																					1
																					6
	1																				17
																					1
																					1
																		5			9
																		2			2
																					12
																					1
																					2
																					26
																					31

REPORT FROM BRANCH LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH

Municipalities.	Diphtheritic Swabs.				Tuberculous Sputa		Typhoid Bloods.		Syphilis.						
	Release		Diagnosis						Wassermann Reaction					Treponema Pallida.	
	+	−	+	−	+	−	+	−	Colloidal Gold Reaction	Very Strongly Positive	Strongly Positive	+	−	+	−
Simcoe—															
Barrie	....	....	....	....	....	....	1	4	....	....	....	....	....	....	....
Ivey	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
Stormont—															
Cornwall	....	1	....	4	6	10	2	4	....	3	....	2	11	....	....
Dickinson's Landing	....	....	....	....	1	1	....	1	....	....	....	....	....	....	....
Finch	....	....	....	1	....	2	....	....	....	....	....	....	....	....	....
Moose Creek	....	....	....	....	....	11	....	....	....	....	....	....	....	....	....
Newington	....	....	....	3	2	2	2	5	....	....	....	....	1	....	....
St. Andrews	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Temiskaming—															
Cochrane	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Victoria—															
Lindsay	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....
York—															
Toronto	....	....	....	....	....	....	....	....	....	....	....	1	1	....	....
Grand Total	59	169	99	547	148	1071	37	261	....	168	72	174	1630	6	86

OF ONTARIO AT KINGSTON FOR THE YEAR 1919.—SPECIMENS EXAMINED.—*Con.*

Gonorrhea		Rabies Diagnosis				Milk											Waters		Liquors for License Department	Miscellaneous Specimens	Total for Year
		Animal	Negri Bodies		Animal Inoculations	Food Content		Preservatives		Bacteriological					Extraneous Matter	Number of Milk Samples	Chemical	Bacterial			
+	—		+	—		Fats	Total Solids	+	—	Tubercle Bac		Pus Cells		Count							
										+	—	+	—								
..	..	....	....	....	....	....	....	..	..	....	....	....	....	..	....	....	....	....	....	....	5
..	..	....	....	....	....	....	....	..	..	....	....	....	....	..	....	....	....	....	....	....	1
..	2	....	....	....	....	....	....	..	..	....	....	....	....	..	....	....	....	....	....	....	45
..	..	....	....	....	....	....	....	..	..	....	....	....	....	..	....	....	....	....	....	....	3
..	..	....	....	....	....	....	....	..	..	....	....	....	....	..	....	....	....	....	....	....	3
..	1	....	....	....	....	....	....	..	..	....	....	....	....	..	....	....	....	....	....	1	13
..	..	....	....	....	....	....	....	..	..	....	....	....	....	..	....	....	....	....	....	....	15
..	..	....	....	....	....	....	....	..	..	....	....	....	....	..	....	....	....	....	....	....	1
..	..	....	....	....	....	....	....	..	..	....	....	....	....	..	....	....	....	....	....	3	3
..	..	....	....	....	....	....	....	..	..	....	....	....	....	..	....	....	....	....	....	....	1
..	..	....	....	....	....	....	....	..	..	....	....	....	....	..	....	....	....	....	....	....	2
13	50	....	....	....	....	....	....	..	..	....	....	....	....	..	....	....	....	579	....	186	5355

REPORT FROM LABORATORIES OF THE PROVINCIAL BOARD OF HEALTH OF ONTARIO

Municipalities	Diphtheritic Swabs				Tuberculous Sputa		Typhoid Bloods		Syphilis						
	Release		Diagnosis							Wassermann Reaction				Treponema Pallida	
	+	—	+	—	+	—	+	—	Colloidal Gold Reaction	Very Strongly Positive	Strongly Positive	+	—	+	—
Fort William	7	20	10	17	14	73	1	8	....	19	3	2	122	....	1
Port Arthur	....	....	....	7	....	9	....	....	....	2	1	....	16	....	1
Sioux Lookout	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Total	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....

AT FORT WILLIAM FOR THE 3 MONTHS ENDING JAN. 31. 1920.—SPECIMENS EXAMINED.

Gonorrhea		Rabies Diagnosis				Milk											Water		Liquors for License Department	Miscellaneous Specimens	Total for 3 Months
		Animal	Negri Bodies		Animal Inoculations	Food Content		Preservatives		Bacteriological					Extraneous Matter	Number of Milk Samples	Chemical	Bacterial			
										Tubercle Bac.		Pus Cells		Count							
+	−		+	−		Fats	Total Solids	+	−	+	−	+	−								
12	23	....	....	....	25	....	....	1	..	....	....	....	....	...	25	26	....	....	....	60	418
..	1	....	....	....	8	1	....	1	..	....	....	....	....	...	8	10	....	....	....	35	82
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	....	1
..	..	....	....	....	....	....	....	..	..	....	....	....	....	...	....	....	....	....	....	....	501

Provincial Board of Health of Ontario

EXPERIMENTAL STATION

BULLETIN No. 7

Recommended Methods for Physical and Chemical Examination

OF

SEWAGE AND WATER

BY

A. V. DeLAPORTE, B.A.Sc.,
Chemist in Charge of the Experiment
Station

FOREWORD TO THE SECOND EDITION.

Owing to the demand for Extract Bulletin No. 5 of the Experimental Station, the supply was soon exhausted. In making a reprint several changes have been made and a simple method for detection of alum by the use of hematin included.

Water from the Great Lakes will sometimes show the presence of free alum with hematin and in examining a filter, a sample of the untreated water should always be examined in conjunction with the treated water and any increase in colour noted.

The compiler would be glad to receive communications from chemists engaged in this type of work embodying criticisms in the methods recommended, new methods, or improvements of any kind so that further reprints may be made more useful to sanitarians at large.

A. V. DeL.

June 14th, 1920.

COMPILATION OF RECOMMENDED METHODS FOR THE PHYSICAL AND CHEMICAL EXAMINATION OF SEWAGE AND WATER

INTRODUCTION, FIRST EDITION.

The standardization of methods and technique employed in the chemical examination of water and sewage throughout the Province of Ontario is most important. Municipal consulting laboratories are becoming more numerous and each analyst examines the water and sewage by the methods taught in the particular school where he had his training. These methods vary widely in some tests. The results of the tests, for which the technique varies widely, are at best but of comparative value and it is most important that there should be a standard method for examination so that the results of analysis throughout the Province may be comparable, and any departure from the standard technique should be stated in reporting results.

To expedite the use of a standard technique in the various laboratories in the Province it is proposed in this paper to give the methods employed in the Experimental Station of the Provincial Board of Health of Ontario, and to outline briefly the reason why that particular method was chosen as against other optional or recommended methods.

The Standard Methods of Water Analyses of the American Public Health Association are used as a basis, and most of the methods outlined, in the following, will be found to have a common origin with the American Public Health Association methods, but with two or three notable exceptions.

In large laboratories engaged in the examination of water or sewage, such as those of the Board of Health, that method, where there is a choice of several methods of examination, which will give the most comparable results in a minimum of time, is the proper method to employ.

The "oxygen consumed from permanganate test" is a case in point. In the standard methods of water analyses of the American Public Health Association there are several methods mentioned: (1) Digestion in the water bath for thirty minutes; (2) boiling for two minutes; (3) boiling for five minutes; (4) standing at 20°C. for four hours. As the "oxygen consumed" is a test to determine the quantity of oxygen required to oxidize the organic matter in a sample, or, in other words, an indication of the amount of reducing organic matter in the sample, a most reasonable method is to add the permanganate solution and keep the sample at a temperature of from 18° to 20°C. for a period of hours. The interval of four hours at 20°C., as given in the above mentioned report, is not, however, a sufficient length of time, at that temperature, to measure the oxygen requirement. Laboratory experience has shown that it is impracticable to keep a number of daily samples for long periods, and that it is possible to achieve practically the same result as would be obtained by prolonged digestion at low temperature by raising the temperature and shortening the period of digestion.

"Oxygen consumed" is at best but a comparative test and it is necessary in making comparisons that the samples should be tested in exactly the same manner, consequently the temperature must be raised to the same point in each and every analysis, and digestion continued for a defined length of time. Two temperatures are readily available for digestions of this nature and can be determined without the use of thermometers and automatic temperature regulating devices; the first is obtained by using a boiling water bath, the second by raising the temperature of the acidulated sample to its boiling point. Digestion on a water bath for thirty minutes gives splendid results and is the method recommended by the American Public Health Association, but similar results are secured by boiling the sample for five minutes. To show a comparison of the methods, raw sewage was filtered with aluminium cream until it was absolutely free from suspended matter. The filtered cample was then tested for "oxygen consumed" by several methods:

Digested for 30 minutes on boiling water bath.	Boiled for 5 minutes.	Boiled for 2 minutes.	English Method standing at 20° C. for 4 hours.
3.7 c.c.	3.3 c.c.	1.6 c.c.	2.9 c.c.
3.3 c.c.	3.6 c.c.	1.7 c.c.	
3.5 c.c.	3.5 c.c.		

Results in cubic centimeters of a standard K Mn O_4 solution.

From the above table it will be seen that boiling for five minutes gives results almost identical with those obtained by digesting on the water bath for thirty minutes. It was therefore decided to recommend the five minute method, which is the method we now use in our laboratory.

The samples of sewage are arranged in proper sequence with a numbered casserole in front of each. The analyst puts 10 cc. of each sample into the casserole, and adds 90 cc. of a 2.5% solution of sulphuric acid from an automatic pipette. The acidulated sample is then placed on a special hot plate. Five samples are treated at a time. When the samples have come to a boil, No. 1 is lifted off and 12 cc. of the standard potassium permanganate solution is added from an automatic pipette and the sample replaced on a hot plate. The addition of the permanganate takes only a small fraction of a minute. One minute after No. 1 has been treated with permanganate solution No. 2 is treated; one minute after No. 2, No. 3, and so on until at the end of four minutes all five samples have been treated with the permanganate solution. One minute after No. 5 has had permanganate added No. 1 will have been boiling for five minutes. No. 1 is then removed and 10 cc. of a standard solution of ammonium oxalate is added from an automatic pipette and No. 1 is replaced on the hot plate. The remaining samples are treated similarly at one minute intervals until nine minutes from the time the first permanganate solution is added the five samples, each of which has been boiling for five minutes with permanganate, are decoloured and ready for the final titration with the standard permanganate solution. This is proceeded with immediately. The next five samples are warming up while the first five are being titrated.

Three methods of dissolved oxygen have been tried: (1) Winkler's method; (2) a field method outlined by Mr. James Miller, F.I.C., in the Journal of the Society of Chemical Industry, February 28, 1914 (this is a modification of the method of Linossiers published in the Journal of the Society of Chemical Industry, 1891, page 726); and (3) a colorimetric method worked out by Mr. Lancaster and Mr. Bonham of the Provincial Board of Health, Ontario, which is a modification of a method outlined by Sir William Ramsay and Miss Homfray (Colorimetric Determination of Dissolved Oxygen), Journal, Society of Chemical Industry (1901), 20, 1071-4.

For determinative analysis the latter is undoubtedly the most accurate method yet outlined, but for turbid and coloured samples and for use in field work Miller's method is best. This being the case, Miller's method is the most suitable for general use and our technique for this method will be detailed later.

"Permanent standards for ammonia" are made up of an alkaline methyl orange solution instead of the platinum cobalt standards recommended by the American Public Health Association. They appear to be quite as satisfactory as the platinum standards. After standing for several months, however, a white solid may appear; this necessitates the renewal of the standards.

"Permanent standards for nitrites" are made up of solution of fuchsin, the desired bluish tone being secured by the addition of a solution of copper sulphate.

Nitrates.—If estimating nitrates in samples with a high chlorine content (by the phenol sulphonic method), make up standard, adding sufficient standard sodium chloride solution to make the chlorine content in the standard the same as in the sample. This renders the precipitation of the chlorine in the solution unnecessary and will give results sufficiently accurate for most purposes. Addition of Ammonium Hydroxide to the acid mixture instead of Potassium Hydroxide solution as recommended by the American Public Health Association, does away with the turbidity sometimes encountered in doing nitrates on sewage samples.

A. V. DeLaporte.

METHODS FOR WATER AND SEWAGE ANALYSIS.

COLLECTION OF SAMPLES.

For the physical, chemical and microscopical examination of water, bottles should be glass stoppered and have a capacity of at least two litres. Before using, the bottle should be cleansed by treating with sulphuric acid and potassium bichromate, rinsing with distilled water until the rinse water shows on testing with Barium Chloride solution, no trace of sulphates, then draining. The stoppers and necks of the bottles should be protected from dirt by tying cloth, sheet rubber, tin foil or oiled paper over them.

The time that may be allowed to elapse between the examination of a sample and its collection depends on the character of the sample and on the examination to be made.

The maximum limits suggested by the American Public Health Association are satisfactory.

Physical and Chemical Analysis.

	Hours.
Ground waters	72
Fairly pure surface waters	48
Polluted surface waters	12
Sewage effluents	6
Raw sewages	6

Microscopical Examinations.

	Hours.
Ground water	72
Fairly pure surface waters	24
Water containing fragile organisms. Immediate examination.	

Biological Examination.

	Hours.
Samples kept at less than 10 deg. C.	24

Samples for sanitary chemical examinations may be sterilized by the addition of chloroform, formaldehyde, mercuric chloride, which will permit of their being kept for longer periods than those indicated. The period of time elapsing between the collection of sample and its examination should be reported with the results.

Estimations of gases dissolved in samples, more especially oxygen, hydrogen sulphide and carbon dioxide must be at the time of collection of the sample in order to secure reasonable accuracy.

It is absolutely essential that the samples examined be truly representative, and it must not be forgotten that composite samples obtained by mixing amounts collected at frequent intervals over twenty-four hours may not indicate actual conditions but only an average which may be the result of wide variation.

ALUMINIUM CREAM.

This is used for clarification of samples in which colour or turbidity interferes with the determination of chloride, nitrites or nitrates.

Preparation.—Weigh out about 125 grams of potash or ammonium alum, dissolve in a small volume of distilled water, then dilute to about one litre in a large beaker. Add ammonium hydroxide until precipitation is complete; then wash by decantation until the wash water comes out free from nitrites and chlorides. Finally, make up to about a litre with distilled water, bottle and keep for use.

Application.—To apply this in clarification, rinse a 250 cc. flask with the sample, measure into it 200 cc. of the water to be examined, add 3 cc. aluminium cream, and shake vigorously. Allow to stand in a warm place for ten to fifteen minutes, then dilute to the mark with distilled water, and filter through a dry folded filter. Examine the filtrate in the ordinary way. Results must be multiplied by a factor to correct for the dilution.

TURBIDITY.

Use diatomaceous earth as free as possible from sponge spicules and amorphous silica. Wash with water to remove soluble salts; dry, and ignite to remove organic matter; treat and warm with dilute hydrochloric acid; wash with distilled water until free of acid, and dry thoroughly. Grind in an agate mortar, sifting through a No. 200 mesh sieve in order to separate mats obtained by grinding, and dry in a desiccator. One gram of this preparation in one litre of distilled water makes a stock suspension which contains 1,000 parts per 1,000,000 of silica, and which should have a turbidity of 1,000. Test this suspension, after diluting a portion of it with nine times its volume of distilled water, with a wire to ascertain if the silica has the necessary degree of fineness, and if the suspension has the necessary degree of turbidity. If not, correct by adding more silica or more water as the case demands. Standards for comparison shall be prepared from this stock suspension by dilution with distilled water. For turbidity readings below 20, standards of 0, 5, 10, 15 and 20 shall be kept in gallon bottles made of clear white glass; for readings above 20, standards of 20, 30, 40, 50, 60, 70, 80, 90 and 100 shall be kept in Nessler tubes, approximately twenty millimeters in diameter.

Comparison of the water under examination with standards shall be made by viewing them sidewise toward the light, looking at some object and noting the distinctness with which the margins of the object can be seen. The standards shall be kept stoppered, and both sample and standards shall be thoroughly shaken before making the comparisons.

In order to prevent any bacterial or algal growths from appearing in the standards, a small amount of bichloride of mercury may be added to them.

Notes:—

In readings higher than 100 use dilutions.

DETERMINATION OF COLOUR.

Solutions Required—

Platinum—Cobalt Standard.

Weigh out accurately 1.246 grams Potassium Platinic Chloride ($Pt.Cl_4.2KCl.$) and 1 gram Cobalt Chloride ($CoCl_2.H_2O$), add 100 cc. concentrated hydrochloric acid and dilute with distilled water to one litre in a standard flask. This solution has a colour of 500. By diluting various amounts of this solution with water to definite volumes in Nessler tubes, colours 0, 5, 10, 15—70 may be prepared. They are permanent if protected from dust.

Fill a Nessler tube to the graduation mark with the water to be examined to a depth equal to that of the standards. Compare with the standards by looking vertically downwards through the tubes upon a white surface placed at such an angle that the light is reflected upwards through the liquid. Dilute any samples having a colour greater than 70, before making the comparison.

The apparent colour is determined on the original sample without filtration. In the case of samples carrying suspended solids, the true colour is determined on the sample after filtration through paper, or if the suspended matter is fine, through a Berkefeld filter.

The results of colour determined shall be expressed in whole numbers and recorded.

Between	1—50	to the	nearest	unit.
	51—100	"	"	5
	101—250	"	"	10
	251—500	"	"	20

The method used by the United States Geological Survey gives results in substantial agreement with those obtained by the Platinum Cobalt method and is recognized as a standard procedure.

Notes:—

DETERMINATION OF ODOUR.

(1) When Cold.—When the bottle containing the sample has been standing at room temperature for some time, is about half full, give it a thorough shaking, remove the stopper and smell the odour at the mouth of the bottle.

(2) When Hot.—Pour about 150 cc. of the sample into a tall 400 cc. beaker without lip. Cover with a well-fitting clock glass, place on the hot plate and heat until the water is just below boiling point. Remove the beaker from the plate and allow to cool for not more than five minutes. Then shake with a rotary movement, slip the cover glass to one side and smell the odour.

Expression of Results.

QUALITY OF ODOUR.

A—Aromatic.
C—Free chlorine.
d—Disagreeable.
e—Earthy.
f—Fishy
g—Grassy,
m—Mouldy.
M—Musty.
P—Peaty.
s—Sweetish.
S—Hydrogen sulphide.
V—Vegetable.

The intensity of the odour is expressed by prefixing a numeral to the expression of quality.

Numerical Value.	Term.
0	None.
1	Very faint.
2	Faint.
3	Distinct.
4	Decided.
5	Very strong.

Notes:—

ESTIMATION OF NITROGEN.

A. As Ammonia. I. Free Ammonia.

Reagents Required.

(a) *Ammonia Free Water.*

When the tap water is ordinarily pure; ammonia free water may be prepared from it by fractionating the distillate from the large still. If about thirty litres of tap water are placed in the still and ten litres collected in jar, the next ten litres which come over are practically ammonia free, and are best collected in glass stoppered bottles. Always apply test on 50 cc. with Nessler's reagent to make sure that no colouration is formed.

If for any reason the tap water carries an abnormal amount of organic matter it may be quite impossible to get ammonia free water in this way. In such cases a double distillation is necessary. Collect 5-10 litres of the best water from the still. Place it in a large round-bottom flask, add a few beads to prevent bumping and about 100 cc. of ammonia free sodium carbonate solution. Connect with glass condenser and distill again. After about one litre has passed over, test the distillate with Nessler's reagent, and if not free from ammonia continue the distillation and test again for ammonia. As soon as it is found to be ammonia free collect in the bottles prepared for the ammonia free water. Discontinue the distillation before the liquid in the flask has nearly boiled off.

(b) *Ignited Pumice to Prevent Bumping.*

Coarsely granular pumice may be ignited at red heat 5-10 minutes and then allowed to cool and placed in glass stoppered bottle. Avoid handling.

(c) *Nessler's Reagent.*

PREPARATION.

(*a*) Dissolve about 125 grams of potassium iodide crystals in 500 c.c. distilled water.
(*b*) Prepare a solution of mercuric chloride, saturated at ordinary temperature.
(*c*) Weigh out approximately 300 grams stick potash and dissolve in a small volume of water in a porcelain dish.

Reserve 20 cc. *a*, and to the remainder add *b* gradually, with constant stirring until a faint but permanent precipitate is formed. Then add the 20 cc. *a*, and again add *b* carefully, drop by drop, with constant stirring until a faint red opalescence persists. Add *c* gradually, then dilute the whole to two litres. Allow to settle and draw off the clear liquid into a small bottle for use as required.

(d) *Ammonia Free Sodium Carbonate Solution.*

Weigh out approximately 100 grams sodium carbonate, dissolve in one litre distilled water, and boil the solution until 3 cc. of it diluted to 50 cc. with ammonia free water give no reaction with Nessler's reagent. Cool and bottle.

(e) *Ammonium Chloride.* (*Standard Solution.*)

Weigh out accurately 3.82 grams of pure ammonia chloride, dissolve in distilled water and dilute to one litre. Mix thoroughly, then withdraw 10 cc. of this solution by means of a pipette, and dilute to one litre with distilled water preferably ammonia free.

1 cc. equivalent to 0.01 mg. nitrogen.

Analysis.

Thoroughly cleanse still. Rinse the flask with a few cubic centimetres HCl, then three times with tap water and three times with distilled water. Measure out about 500 cc. of distilled water (preferably ammonia free), transfer to flask, add two or three pieces of pumice, about 2 cc. ammonia free sodium carbonate solution, connect with the condenser and light the burner. Allow about 200 cc. to distill over. Then collect 50 cc. in Nessler tube and test with Nessler's reagent to make sure no ammonia is passing over. In Nesslerizing use plenty of rinse water for the tubes (if they have been standing rinse with HCl), followed by three rinsings of distilled and one of ammonia free water. Add about 2 cc. of Nessler's each time by means of a dip pipette and allow to stand five minutes before taking reading. Avoid touching with the rim of Nessler.

When the distillate has been found ammonia free, disconnect the flask and add 500 cc. of water sample (use standard flask to measure), reconnect the flask with condenser and continue the distillation, adjusting the burner so that 30 cc. of distillate pass over it in fifteen minutes. Collect four 50 cc. Nessler tubes and Nesslerize. The readings to be recorded as free ammonia, turn off the burner.

2. ALBUMINOID AMMONIA.

ADDITIONAL REAGENT. *Preparation of Alkaline Permanganate Solution.*

Employ two 2-litre Erlenmeyer flasks, using each to make up one litre of solution, performing the following operations in duplicate:

Weigh out approximately 200 g. stick potash and eight grams crystallized potassium permanganate. Pour into the flask one litre of distilled water, and mark the level of the liquid with a blue pencil. Add 250 cc. distilled water and again mark the level reached by the water. Add the 200 g. potash cautiously, inclining the flask and sliding the sticks down the side. Shake the flask gently until the potash is all dissolved, then add the permanganate and boil briskly over a thin gauze, until the volume diminishes to 1,000 cc. Allow to cool and bottle. Use 30 cc. for each determination of albuminoid ammonia.

When distilling off the free ammonia for the above determination, prepare the solution of alkaline permanganate for addition to the distillation flask. Thoroughly cleanse a 400 cc. Erlenmeyer flask and measure into it 150 cc. ammonia free water. Add 25 cc. alkaline permanganate solution and boil briskly while the determination of free ammonia is being made. Add the contents of the Erlenmeyer flask to the distillation flask while still hot and distill over four more Nessler (50 cc.) tubes.

Nesslerize and record readings as albuminoid ammonia.

Standards.

The standard solution of ammonia chloride employed for comparison contains 0.01 mg. nitrogen per cubic centimeter. As the intensity of the colour produced by Nessler's reagent reaches maximum in about five minutes after reagent is added and remains practically constant for twelve hours, a set of standards may be made up for each day's work. In case the permanent standards recommended by the American Public Health Association are made from a solution of Cobalt chloride and potassium platinic chloride, they should be checked up by the standard ammonium chloride solution for each batch of Nessler, by each individual using them.

CALCULATION OF RESULTS IN P.P.M.

A Typical Calculation.

Laboratory No.	Free Ammonia using 500 c.c. water.
First tube	2.5
Second tube	1.75
Third tube	1.
Fourth tube	0.
	5.25 x 0.02 = parts per million.

Albuminoid ammonia is calculated in the same way.

SEWAGE.

For sewage the method in general is very much the same. It is necessary to use a smaller amount of sample; ordinarily 10 cc. is sufficient.

In charging the distillation flask for the cleansing of the still, use 720 cc. distilled water, 2 cc. of ammonium carbonate solution and a few pieces of ignited pumice. This will ordinarily leave a sufficient amount of ammonia free water in the still to dilute the sewage to a volume great enough to supply 400 cc. distillate. If it is found that less than 500 cc. of water remain in the flask when sample is added, the contents may be diluted to approximately that amount with ammonia free water.

Notes:—

B. ESTIMATION OF NITROGEN AS NITRITES.

Solutions Required.

(a) *Sulphanilic Acid.*

Weigh out approximately 1.65 grams sulphanilic acid, transfer to a beaker, add 375 cc. distilled water and heat until the crystals are dissolved. Cool and add 125 cc. acetic acid (95%).

(*b*) *Alpha Naphthylamine Acetate.*

Weigh out about 0.25 grams alpha naphthylamine, transfer to a 200 cc. Erlenmeyer flask, add 50 cc. distilled water and boil in the fume cupboard for about five minutes, adding water as required to replace loss by evaporation. Filter through washed absorbent cotton. To the filtrate add 125 cc. acetic acid (95%), and dilute to 500 cc. with distilled water.

(*c*) *Standard Solution of Sodium Nitrite.*

1. If sodium nitrite can be obtained in a fair degree of purity, dry some of the salt by heating on a watch glass to constant weight in a steam oven. Weigh out accurately 0.246 grams of the dry salt, dissolve in distilled water to 500 cc. This solution contains 0.1 mg. nitrogen per cubic centimeter and will keep best in a cool, dark place. For use withdraw 10 cc. of the above solution (c. 1).

2. By means of a pipette, transfer to a litre flask, dilute to the graduation mark with distilled water.

1 cc. = 0.001 mg. nitrogen.

If the sodium nitrite in stock is known to be impure, prepare pure silver nitrite by adding silver nitrate solution to a concentrated solution of potassium nitrite, and allowing the silver nitrate which is sparingly soluble, to crystalize out. Recrystalize from aqueous solution, dry rapidly on paper and preserve in a brown kettle.

Weigh out accurately 0.22 grams of this silver nitrite, dissolve in distilled water, add sufficient dilute solution of pure sodium chloride to precipitate the silver completely. Mix until homogenous, transfer to a 200 cc. flask and dilute to the graduation mark with distilled water. Allow the precipitate to settle, then pipette out 10 cc. of the clear solution and dilute with distilled water to one litre.

1 cc. = 0.001 mg. nitrogen.

Analysis.

Rinse a 100 cc. Nessler tube with some of the sample, then fill to the graduation mark with the water to be examined. Add 2 cc. alpha naphthylamine acetate solution, 2 cc. sulphanilic acid solution and allow to stand ten minutes. Match the colour produced in similar tubes with distilled water, same amounts of reagents, and known quantities of the sodium nitrite solution added from burette. If the sample is turbid or coloured, clarify with aluminium cream. Nitrites are present in the air of a room in which gas is burning. If such a laboratory is used do not allow the tube to stand more than thirty minutes after adding the reagent.

C. ESTIMATION OF NITROGEN AS NITRATES.

Solutions required.

(*a*) *Standard solution of potassium nitrate.*

Weigh out accurately 0.722 grams pure potassium nitrate. Dissolve in a small tube of water, then dilute to one litre with distilled water.

(*b*) *Phenol-disulphonic acid.*

Weigh out about 15 grams pure phenol, transfer to a 200 cc. Erlenmeyer flask, add 100 cc. pure concentrated sulphuric acid and heat on the water bath for six hours.

(*c*) *Colorimetric standard solution.*

By means of a pipette, measure out 10 cc. of the standard solution of potassium nitrate, (solution 1 above), evaporate to dryness in a small porcelain dish, moisten quickly and thoroughly with 2 cc. of the phenol-disulphonic acid solution and dilute to one litre with distilled water.

1 cc. of the solution = 0.001 mg. nitrogen.

Analysis.

If the sample is coloured or shows turbidity, clarify with aluminium cream. Clear, colourless samples may be examined without preliminary treatment. By means of a pipette, measure out 10 cc. sample into a 3-inch evaporating dish, and heat on the water bath until only a few drops remain, then set aside and allow the remainder to evaporate spontaneously.

Add six drops of phenol-disulphonic acid directly upon the dry residue, and stir with a glass rod to mix thoroughly. Dilute with about 10 cc. distilled water, then add 10 cc. ammonium hydroxide. Rinse the solution into a 50 cc. Nessler tube, and dilute to the graduation mark with distilled water.

Match the colour produced in similar tubes by adding from a burette, various amounts to the standard colorimetric solution (3) to distilled water made alkaline with ammonium hydroxide. Chlorides interfere with the accuracy of the method, but not seriously, unless the chlorine is greater than 20 parts per million.

In examining samples high in chlorides, add to the standard solution of potassium nitrate, the amount of standard solution of sodium chloride required to increase the chloride content to equal that of the sample.

If pure silver sulphate free from nitrates is obtainable it may be employed to precipitate the chlorine. Pipette out 10 cc. of the sample and add N/50 sulphuric acid to not quite neutralize the alkalinity (determined previously as temporary hardness by titration with lacmoid as indicator). Add sufficient silver sulphate solution (4.3969 grams per litre; 1 cc. = 1 mg.) to precipitate the chlorides. Heat to boiling, add a little aluminium cream, allow to settle and filter while hot. Wash with small amounts of hot distilled water. Examine the filtrate in the ordinary way.

Notes:—

ORGANIC NITROGEN.

Procedure for Water: Boil 500 cc. of the sample in a round-bottomed flask to remove ammonia nitrogen. This usually causes the loss of 200 cc. of the sample, which may be collected for the determination of ammonia nitrogen. Add 5 cc. of nitrogen-free concentrated sulphuric acid and a small piece of ignited pumice. Mix by shaking and place over a flame under a hood. Digest until copious fumes of sulphuric acid are given off and the liquid finally becomes colorless or pale straw colour. Remove from the flame, and add potassium permanganate crystals in small portions until a heavy green precipitate persists in the liquid. Cool. Dilute to about 300 cc. with ammonia-free water. Make alkaline with 10 per cent. ammonia-free sodium hydroxide. Distill the ammonia, collect the distillate in Nessler tubes, Nesslerize, and compare with standards as described for the estimation of Ammoniacal Nitrogen.

Procedure for Sewage: Distill the ammonia nitrogen directly from 100 cc. or less of the sample, diluted to 500 cc. with nitrogen-free water. Collect the distillate and determine the ammonia nitrogen in it. All 5 cc. of nitrogen-free sulphuric acid and 1 cc. of 10 per cent. nitrogen-free copper sulphate, and digest the liquid for half an hour after it has become colourless or pale straw colour. Add 5.0 gram of potassium permanganate crystals to the hot acid solution, and dilute to 500 cc. with ammonia-free water. Dilute 10 cc. or more of this liquid, in a Kjeldahl distilling flask, to about 300 cc. with ammonia-free water. Make alkaline with 10 per cent. sodium hydroxide, distill, and Nesslerize. With some samples direct Nesslerization may be used.

In this determination care must be taken to digest thoroughly, to add potassium permanganate to the point of precipitation, to sample carefully after dilution, and to add enough sodium hydroxide to insure the separation of the ammonia from the precipitated manganese hydroxide. Potassium permanganate should not be added during digestion because it causes loss of nitrogen.

TOTAL NITROGEN.

The total nitrogen is calculated by adding together the Organic, nitrite, nitrate and ammonia nitrogen.

Notes:—

TOTAL RESIDUE.

Evaporate 100 cc. of the thoroughly shaken sample in a tarred platinum dish on a water bath. Dry the dish in a drying oven at 103°C. for one hour. Cool in a desiccator and weigh. Multiply the weight of the residue in milligrams by ten to secure the result in parts per million.

FIXED RESIDUE AND LOSS ON IGNITION.

Ignite the above residue in the platinum dish at dull red heat, until the residue is white or nearly so. Cool and just moisten with water. Dry the residue in an oven as for total solids and weigh. Record the weight of the final residue as fixed solids and the difference between the weight of the fixed solids and total solids is recorded as loss on ignition.

SUSPENDED SOLIDS.

The difference between the total solids in filtered and unfiltered portions of the sample is used as a basis for calculating suspended matter.

Notes:—

OXYGEN CONSUMED.

Reagents required.

(*a*) *Dilute Sulphuric Acid.*

One part strong acid to three parts distilled water, 10 cc. approximately used in each titration.

(*b*) *Solution of Ammonium Oxalate.*

0.888 grams crystals dissolved in small amount of distilled water, and the solution made up to one litre. 1 cc. is quivalent to 0.1 mg. of oxygen.

(*c*) *Standard Solution of Potassium Permanganate.*

0.3952 g. of the salt, dissolved in small vol. distilled water, then made up to 1 litre. 1 cc. = 0.1 mg. available oxygen.

Analysis.

Measure 100 cc. of the water sample (10 cc.-50 cc. in case of sewage) into a porcelain dish by means of pipette, add 10 cc. of sulphuric acid solution, and in case of sewage dilute to 100 cc. Heat to boiling, read permanganate burette, then add the standard permanganate solution until there is a permanent pink and maintain the colour for 5 min. Raise the burette from the steam, and continue to heat the dish over the open flame. At the end of five minutes, remove the flame, add 10 cc. ammonium oxalate solution by means of a pipette, and then add permanganate gradually, until a permanent pink colouration appears. Read the burette.

The permanganate solution is used up by

(1) The organic impurities in the sample.
(2) The ammonium oxalate added.

Make a "blank" determination, using 100 cc. distilled water instead of the sample in the above. The amount of permanganate required in this will represent the amount equivalent to the 10 cc. ammonium oxalate under the conditions of time, temperature and concentration observed in the process.

The difference between the two amounts of permanganate will represent the amount consumed by the organic impurities in the sample. Certain other materials, such as hydrogen sulphide, nitrites and chlorides affect the result, but not seriously except when present in large amounts, and may be disregarded unless for special reasons extreme accuracy is desired.

DISSOLVED OXYGEN—"MILLER'S METHOD."

Reagents.

(*a*) *Methylene Blue Solution*—1 gram of methylene blue is dissolved in 1000 cc. of distilled water.

(*b*) *Ferrous Ammonium Sulphate Solution*—0.3103 grams of ferrous ammonium sulphate crystals and 1 cc. concentrated sulphuric acid made up to 100 cc.

(*c*) *Alkaline Tartrate Solution*—60 grams of caustic soda and 173 grams of sodium potassium tartrate (Rochelle salt) dissolved in 500 cc. of water.

Analysis—50 cc. of the sample to be tested are pipetted into 100 cc. Nessler tube—being introduced below a covering layer of paraffin oil; 5 cc. of solution (*c*) and 1 drop of solution (*a*) are then added. Then from a 10 cc. graduated pipette solution (*b*) is run just below the surface of the liquid, stirring gently with a pipette until the colour is just discharged. The pipette reading gives the number of cubic centimetres of oxygen per litre.

Theoretically 1 cc. of (*b*) does not equal 1 cc. of oxygen per litre working on 50 cc. of the sample, but the above strength gives approximately correct results.

Miller says: "Each laboratory worker should test his ferrous sulphate against water of known oxygen content, say distilled water shaken with air until saturated, taking the temperature and referring to Roscoe & Lunt's table (Sutton's volumetric analysis, page 280), for the amount of dissolved oxygen present."

ROSCOE & LUNT'S TABLE.—Oxygen Dissolved by distilled H_2O.

Temperature, Degrees C.	c.c. of Oxygen, N.T.P. Per Litre, Ag.	Difference for 0.5° C.	Temperature, Degrees C.	c.c. of Oxygen, N.T.P. Per Litre, Ag.	Difference for 0.5° C.
5.0	8.68		18.0	6.54	.07
5.5	8.58	.10	18.5	6.47	.07
6.0	8.49	.09	19.0	6.40	.06
6.5	8.40	.09	19.5	6.34	.06
7.0	8.31	.09	20.0	6.28	.06
7.5	8.22	.09	20.5	6.22	.06
8.0	8.13	.09	21.0	6.16	.06
8.5	8.04	.09	21.5	6.10	.05
9.0	7.95	.09	22.0	6.04	.05
9.5	7.86	.09	22.5	5.99	.05
10.0	7.77	.09	23.0	5.94	.05
10.5	7.68	.08	23.5	5.89	.05
11.0	7.60	.08	24.0	5.84	.04
11.5	7.52	.08	24.5	5.80	.04
12.0	7.44	.08	25.0	5.76	.04
12.5	7.36	.08	25.5	5.72	.04
13.0	7.28	.08	26.0	5.68	.04
13.5	7.20	.08	26.5	5.64	.04
14.0	7.12	.08	27.0	5.60	.03
14.5	7.04	.08	27.5	5.57	.03
15.0	6.96	.08	28.0	5.54	.03
15.5	6.89	.07	28.5	5.51	.03
16.0	6.82	.07	29.0	5.48	.03
16.5	6.75	.07	29.5	5.45	.02
17.0	6.68	.07	30.0	5.43	
17.5	6.61	.07			

N.B.—In this Table the results are calculated for aeration at an observed barometric pressure of 760 m.m. When the observed pressure is low, i.e., below 760 m.m., $\frac{1}{76}$ of the value must be *subtracted* for every 10 m.m. diff. The same value must be added when the pressure is above 760 m.m.

DETERMINATION OF HARDNESS.

Temporary Hardness.

Standard solutions required:—

(*a*) *Lacmoid solution for indicator.*

Dissolve one-half gram of lacmoid in 500 cc. of 50 per cent. alcohol. Keep in bottle with dropping tube inserted through the cork.

(*b*) *N/50 sulphuric acid solution.*

Dilute 20 cc. of normal solution of sulphuric acid measured by means of a burette or calibrated pipette to 1 litre with distilled water. The normal sulphuric acid is best prepared by diluting concentrated sulphuric acid to the approximate strength standardizing by precipitation with barium chloride and weighing the barium sulphate obtained. From the results of this approximate standardization the amount of water necessary to add in order to bring the solution to exactly normal strength may be calculated.

Analysis.

For the determination of temporary hardness of a water sample, measure out 100 cc. by means of a pipette, transfer to a porcelain dish or casserole, add ½ cc. of lacmoid solution and run in N/50 sulphuric acid solution from a burette until the blue colour has changed to a reddish purple, then heat rapidly to incipient boiling, remove the flame and continue the addition of the standard acid until a drop added causes no change in the reddish purple colour of the solution.

From the amount of sulphuric acid used calculate the temporary hardness of the sample. One cc. of N/50 sulphuric acid is equivalent to one milligram of calcium carbonate.

Total Hardness (soap consuming power).

This determination must be carried out at 20°C.

Solutions required:

(*a*) *Standard solution of calcium chloride.*

Weigh out accurately 1 gram of C.P. calcium carbonate, transfer to a porcelain dish, cover with a clock glass and add gradually through the lip of the dish dilute hydrochloric acid in sufficient quantity to dissolve the carbonate. Remove cover glass, rinse with distilled water, and evaporate to dryness on a water-bath. Add about 25 cc. of distilled water and evaporate once more, then dilute to one litre with distilled water. Each cc. of this solution is equivalent to one milligram of calcium carbonate.

(*b*) *Standard soap solution.*

Scrape about ten grams of shavings from a bar of pure white castile soap, dissolve them in one litre of approximately 60 per cent. alcohol. If not clear, filter through paper.

Standardization of the Soap Solution—Measure out by means of a pipette 10 cc. of the standard calcium chloride solution, transfer to a 150 cc. glass-stoppered bottle and add 90 cc. of distilled water. Add gradually from a burette the standard soap solution until a permanent flame is obtained upon shaking. At first the soap solution must not be added in quantities greater than 1 cc. After each addition shake for a quarter of a minute and place the bottle on its side until the lather formed has broken. Towards the end of the titration do not add more than 1/10 of a cc. of the soap solution each addition, and the end point is taken as the point at which a permanent lather persists for five minutes with the bottle lying on its side. From the result of the titration, calculate the amount of calcium carbonate equivalent to 1 cc. of the standard soap solution.

In doing this it is necessary to allow for the soap consumed by the distilled water. Make a blank determination the same as the above, only using 100 cc. of distilled water with no calcium chloride solution. Deduct the amount required from that previously determined in the standardization.

Analysis.

If the determination of temporary hardness has shown the water to contain much calcium carbonate (more than 200 parts per million) measure out 50 cc. of the sample, transfer to the glass-stoppered bottle, dilute with 50 cc. distilled water and add standard soap solution gradually, shaking after each addition until a lather is formed which persists for five minutes. Deduct from the amount of soap solution used the quantity equivalent to the 50 cc. of distilled water. Express the results in parts of calcium carbonate per million. If the water does not appear to be very hard in the titration with N/50 sulphuric acid, use 100 cc. of the sample in the titration with standard soap solution.

ALKALINITY.

Reagents:

(*a*) *N/50 sulphuric acid.*

(*b*) *Phenolphthalein*—0.5 grams in 50 per cent. alcohol. Neutralize with N/50 KOH solution. Dilute the alcohol with boiled distilled water.

(*c*) *Methyl Orange*—Dissolve 0.5 grams in a litre of distilled water, keep in the dark.

(*d*) *Lacmoid*—Dissolve 2.9 grams of lacmoid in 1 litre of 50 per cent. alcohol as for phenolphthalein.

(*e*) *Erythrosine*—Dissolve 0.5 grams of erythrosine (sodium salt) in a litre of freshly-boiled distilled water.

PHENOLPHTHALEIN.

Add 4 drops of phenolphthalein indicator to 50 cc. or 100 cc. of the sample in a white porcelain casserole or an Erlenmeyer flask over a white surface. If the solution becomes coloured, hydroxide or normal carbonate is present. Titrate with N/50 H_2SO_4. The phenolphthalein alkalinity in parts per million of $CaCO_2$ is equal to the number of cc. of N/50 H_2SO_4 used, multiplied by 20 if 50 cc. of the sample was used or by 10 if 100 cc. was used. This alkalinity is due to hydroxides and normal carbonate.

PROCEDURE WITH METHYL ORANGE.

Proceed with titration as before, using two drops of methyl orange indicator. Calculate the methyl orange alkalinity in the same manner as the phenolphthalein alkalinity. This is due to normal carbonate and bicarbonate alkalinity.

LACMOID.

Add four drops of lacmoid and proceed as before until within 1 or 2 cc. of the amount necessary for neutralization has been added. Warm the solution until it just begins to boil and then continue the titration until a drop of the acid striking the surface of the liquid produces no change in the uniform reddish or purple colour of the solution. Calculate as before.

ERYTHROSINE.

Add 5 cc. of neutral chloroform and 1 cc. of erythrosine to 50 or 100 cc. of the sample in a 250 cc. clear glass-stoppered bottle. If the chloroform becomes rose coloured on shaking, hydroxide, bicarbonate or normal carbonate is present. Add N/59 sulphuric acid from a burette until chloroform is colourless. Calculate as before.

CALCULATION FOR BICARBONATE.

Bicarbonate is present if the alkalinity to phenolphthalein is less than half the alkalinity to methyl orange, erythrosine, or lacmoid. The alkalinity to methyl orange, erythrosine, or lacmoid is due entirely to bicarbonate, if there is no phenolphthalein alkalinity. If there is phenolphthalein alkalinity, the bicarbonate, in terms of $CaCO_3$ is equal to methyl orange, erythrosine or lacmoid alkalinity minus twice phenolphthalein alkalinity. Bicarbonate (HCO_3)=1.22 times the bicarbonate expressed in terms of $CaCO_3$. Carbon dioxide=0.88 times bicarbonate expressed as $CaCO_3$. Half bound carbon dioxide=0.44 times bicarbonate expressed as $CaCO_3$.

CALCULATION FOR NORMAL CARBONATE.

Normal carbonate is present if the alkalinity to phenolphthalein is greater than zero but less than the alkalinity to methyl orange, erythrosine or lacmoid. If the phenolphthalein alkalinity is exactly equal to half methyl orange, erythrosine or lacmoid, the alkalinity is due entirely to normal carbonate. If phenolphthalein alkalinity is less than half methyl orange, erythrosine, or lacmoid alkalinity, normal carbonate expressed in terms of $CaCO_3$ is equal to twice phenolphthalein alkalinity. If phenolphthalein alkalinity is greater than half methyl orange, erythrosine or lacmoid alkalinity normal carbonate equals twice the difference between methyl orange, erythrosine or lacmoid alkalinity and the phenolphthalein alkalinity.

Carbonate (CO_3) = 0.6 times the normal carbonate expressed as $CaCO_3$.

Bound Carbon dioxide = sum of Carbon dioxide as carbonate and one-half Carbon dioxide as bicarbonate.

CALCULATION FOR HYDROXIDE.

If hydroxide is present the alkalinity to phenolphthalein is greater than one-half alkalinity to methyl orange, erythrosine or lacmoid. Alkalinity is due entirely to hydroxide if phenolphthalein alkalinity is equal to methyl orange, erythrosine, or lacmoid alkalinity.

If phenolphthalein alkalinity is more than one-half and less than all methyl orange, erythrosine or lacmoid alkalinity, hydroxide expressed in terms of $CaCO_3$, is equal to twice the phenolphthalein alkalinity minus the methyl orange, erythrosine, or lacmoid alkalinity.

ALKALI CARBONATES.

Determine total alkalinity by titration with N/50 sulphuric acid, using methyl orange, erythrosine, or lacmoid as indicator. Then determine calcium and magnesium content, and subtract from total alkalinity the computed alkalinity due to calcium and magnesium expressed in terms of $CaCO_3$. The remainder is alkalinity due to carbonates and bicarbonates of sodium and potassium.

ACIDITY.

Reagents.

(*a*) *N/50 sodium carbonate.*

Dissolve 1.06 grams of anhydrous sodium carbonate in 1 litre of boiled distilled water that has been cooled in atmosphere free from Carbon dioxide.

Preserve the solution in resistant glass bottles protected from air by tubes filled with soda lime.

1 cc. is equivalent to 1.0 mg. $CaCO_3$.

(*b*) *N/22 sodium carbonate.*

Dissolve 2.41 grams of anhydrous sodium carbonate in 1 litre boiled distilled water as in (1).

1 cc. of this solution is equivalent to 1 mg. $CaCO_3$.

(*c*) *Phenolphthalein indicator,* see under alkalinity.

(*d*) *Methyl orange indicator,* see under alkalinity.

TOTAL ACIDITY.

Add 4 drops of phenolphthalein to 50 cc. or 100 cc. sample in white porcelain casserole or Erlenmeyer flask over a white surface. Add N/50 Sodium carbonate until solution turns pink.

Total acidity in parts per million of $CaCO_3$ is equal to the number of cc. of N/50 Sodium carbonate used, multiplied by 20 if 50 cc. sample was used, or by 10 if 100 cc. was used.

FREE CARBON DIOXIDE.

Carbon dioxide may exist in water in three forms—free carbon dioxide, bicarbonate, and carbonate.

One-half the carbon dioxide as bicarbonate is known as the half-bound carbon dioxide. The carbon dioxide as carbonate plus one-half that as bicarbonate is known as the bound carbon dioxide.

Pour 100 cc. of sample into a tall narrow vessel, preferably 100 cc. Nessler tube. Add 10 drops phenolphthalein, and titrate rapidly with N/22 Sodium carbonate, stirring gently until a faint but permanent pink colour is produced.

The free carbon dioxide in parts per million is equal to 10 times the number of cc. of N/22 Sodium carbonate used.

If possible a special sample should be collected for this determination, which should preferably be made at the time of collection.

If analysis cannot be made at once, sample bottles should be completely filled with water, so as to leave no air spaces under stopper.

Bottled samples should be kept until tested at a lower temperature than that of water when collected.

FREE MINERAL ACIDS.

Add 2 drops methyl orange indicator to 50 cc. or 100 cc. sample in white porcelain dish or an Erlenmeyer flask over a white surface. Add N/50 Sodium carbonate from a burette until pink colour of solution disappears. Acidity due to free mineral acids expressed as $CaCO_3$ is equal to number of ccs. of N/50 Sodium carbonate, multiplied by 20 if 50 cc. sample was used, or by 10 if 100 cc. was used.

MINERAL ACIDS AND SULPHATE OF IRON AND ALUMINUM.

Modify method for free mineral acids by titrating sample at boiling temperature in presence of phenolphthalein indicator.

The acidity due to free mineral acid and sulphate of iron and aluminum, expressed as $CaCO_3$, may be calculated as before.

The acidity due to sulphate of iron and aluminum is equal to acidity due to mineral acids and sulphate minus acidity due to mineral acids.

Report acidity in parts per million of $CaCO_3$, Sulphate (SO_4) equals parts per million of $CaCO_3$ multiplied by 0.96.

DETERMINATION OF CHLORINE AS CHLORIDE.

Solutions required:—

(*a*) *Standard solution* $AgNO_3$
(*b*) *Standard solution* $NaCl$
(*c*) K_2CrO_4 *solution.*

NaCl. Weigh accurately 1.648 gms. pure NaCl dissolved in distilled water and dilute to 1 litre. One cc. of this solution is equal to 1 mg. Cl.

$AgNO_3$. Dissolve about 2.40 gms. of $AgNO_3$ crystals in distilled water and dilute to one litre. One cc. of this solution contains Ag equivalent to approximately 0.0005 gms. Cl.

K_2CrO_4. Dissolve 50 gms. neutral K_2CrO_4 in a little distilled water. Add enough $AgNO_3$ to produce slight red ppt. Filter and dilute to one litre with distilled water.

Analysis.

Measure out 10 cc. sewage sample or 100 cc. water sample into a porcelain dish or casserole, dilute to about 50 cc. for sewage. Add K_2CrO_4 solution sufficient to give a decided colour (3-5 drops). Run in standard $AgNO_3$ solution from a burette, with constant stirring, until the red colour due to $AgCrO_4$ appears. To assist the eye in detecting this colour change add at the end of the first titration sufficient NaCl solution to discharge the red colour and keep the dish beside the similar one used in subsequent titrations. Ordinarily the $AgNO_3$ solution will be of such strength that 1 cc. will equal to 0.5 mg. of Cl. If necessary apply a correction factor obtained by standardizing the $AgNO_3$ solution by titration as above with the standard solution of NaCl.

NOTE.

This process is sufficiently accurate for most purposes. In cases where extreme accuracy is desired it is advisable to titrate in Nessler tubes, using a yellow light. If acid waters are to be examined, neutralization with Na_2CO_3 must precede the titration. In examining highly coloured waters preliminary clarification is necessary.

DETERMINATION OF IRON.

Solutions required:—

(*a*) *Standard Iron Solution.*

This solution is to be of such concentration that 1 cc. contains 0.1 mg. iron. It may be prepared by either of two methods.

(1) Weigh out accurately 0.7 grams pure ferrous ammonium sulphate, dissolve in a small volume of distilled water. Add 20cc. 25 per cent. sulphuric acid. Warm and add dilute solution of potassium permanganate until the iron is just oxidized. Dilute with distilled water to 1 litre.

(2) Weigh out accurately 0.86 grams ferric ammonium alum, dissolve in 500cc. distilled water, add 5cc. conc nitric acid and dilute to 1 litre.

(*b*) *Potassium Thiocyanate.*

Weigh out about 5 grams of the salt and dissolve in 500 cc. distilled water.

Analysis.

Into a 100 cc. Nessler tube, pour 4 cc. hydrochloric acid, 1 cc. nitric acid and 50 cc. of the sample. Add 5 cc. potassium thiocyanate solution dilute to the graduation mark with distilled water. If iron be present, a blood red coloration will be produced. To another similar Nessler tube add distilled water, the same amount of iron reagents as above, with sufficient of the standard solution of iron from a burette, to match the colour formed in the tube containing the sample. If the amount of standard required is greater than 3 cc. the sample must be diluted. This procedure will be found satisfactory in ordinary waters. If turbidity interferes evaporate 100 cc. of the sample of dryness in a porcelain dish on the water bath. When dry add 4 cc. hydrochloric acid, 1 cc. nitric acid and evaporate to dryness in the fume cupboard, add 50 cc. distilled water, filter into a 100 cc. Nessler tube, add 5 cc. potassium thiocyanate solution and dilute to the 100 cc. mark with distilled water. Compare with a standard made up from the standard iron solution, using the same amount of reagents.

Notes:—

DETERMINATION OF LEAD.

Solutions required:

(*a*) *Standard Solution of Lead.*

Weigh out accurately 1.464 grams pure lead sulphate, transfer to a 250 cc. beaker. Add a concentrated solution of ammonium acetate prepared by neutralizing concentrated acetic acid with ammonia, (Litmus). Cover with heat on the hot plate or gauze until dissolved. Cool rinse down with distilled water, and dilute to one litre in a standard flask.

1 cc.=0.001 g. Pb.

(*b*) *Hydrogen Sulphide Solution.*

Nearly fill a small glass-stoppered bottle with cold distilled water and pass hydrogen sulphide gas into it until saturation is reached. Keep stoppered in a cool place. This solution must be clear and freshly prepared.

FOR COLORLESS SAMPLES. *Analysis.*

Measure 50 cc. sample into a Nessler tube, add two or three drops of acetic acid and 2 cc. hydrogen sulphide water. If a color is produced match the same with varying amounts of the standard solution of lead. Before reporting a negative result it is necessary to concentrate a litre of the water to small volume by boiling in a porcelain dish over the open flame.

FOR COLORED SAMPLES.. *Analysis.*

Evaporate two litres of the sample to about 25 cc., add 10 cc. 10 per cent. solution of ammonium chloride and ammonium hydroxide to make strongly alkaline. Then add hydrogen sulphide water and allow to stand for three hours. Boil to expel excess of hydrogen sulphide, and filter. Precipitates of iron, suspended organic matter, with copper and zinc may be present. Filter, wash once with hot water, transfer the filter paper and precipitates to the original dish and dissolve the sulphides by boiling with dilute nitric acid (1 part concentrated nitric acid, 5 parts water), filter and wash. Evaporate to 12-15 cc., cool, add 5 cc. concentrated sulphuric acid and heat on the hot plate in the fume cupboard until fumes of sulphuric acid are evolved. Then if the original samples contained less than 0.25 parts iron per million boil, filter and determine the lead in the filtrate, making the standards alkaline with ammonia. If the iron content exceeds 0.25 parts per million, wash the lead sulphate into a beaker, add alcohol and water and allow to settle over night. Filter, wash free from iron with 50 per cent. alcohol. Dissolve the precipitates by boiling with ammonium acetate, filter and determine the lead as before. Copper, if present in considerable quantity, will give a blue colour to the ammoniacal filtrate from the iron precipitate. A more delicate test employs the ferrocyanide reaction. To the ammoniacal filtrate add acetic acid until distinctly acid, then a few drops of potassium ferrocyanide solution. A red-brown precipitate indicates copper.

HYDROGEN SULPHIDE.

Reagents.

(*a*) *N/100 sodium thiosulphate.*
(*b*) *N/100 iodine solution.*
(*c*) *Starch solution.*
(*d*) *Potassium Iodide Crystals.*

Add 500 cc. of the sample to 10 cc. of the standard iodine solution and 1 gm. of potassium iodide in a glass-stoppered bottle. Shake the bottle and stand for a few minutes and then titrate the excess of iodine with the sodium thiosulphate solution, using the starch indicator. Hydrogen sulphide in parts per million is equal to 0.34 times the number of cubic centimeters of iodine solution used up by the sample.

CHLORINE.

To test for free chlorine in waters that have been treated calcium hypochlorite or liquid chlorine.

Mix 2 cc. of the potassium iodide solution used in the valuation of bleaching powder, 2 cc. of 95 per cent. acetic acid, 1 cc. of starch indicator in 100 cc. of the sample to be tested. A blue colour indicates the presence of free chlorine. The depth of the colour is a rough indication of amount of chlorine.

Notes:—

MINERAL ANALYSIS OF WATER.

Analysis.

Evaporate 1 litre of the sample in a weighed platinum dish upon a water bath. When dry, transfer to an air bath and heat at 105 deg. C. for 30 minutes. Cool and weigh. Then ignite slowly to a dull red heat until all carbonaceous matter is consumed. Cool and weigh. The loss is equal to the weight of the organic matter and the volatile matter. Warm the residue with 10-15 cc. HCl and 25 cc. H_2O. Boil and filter through an ashless filter into a 100 cc. graduated flask, wash the residue thoroughly with hot water and make up to the mark with H_2O.

(1) The residue SiO_2, Al_2O_3, $CaSO_4$.

Dry, ignite and weigh. Then fuse with Na_2Co_3 in a platinum crucible. Dissolve in H_2O made acid with HCl—evaporate to dryness, take up with H_2O and HCl and filter.

Ignite and weigh the residue, then add 2 drops concentrated H_2SO_4 and a little HFl. Volatilize the acids, ignite, weigh, report loss of weight as SiO_2.

Make the filtrate alkaline with NH_4OH, boil and filter. The precipitate is Al_2O_3. Dry, ignite and weigh. To the filtrate add solution $H_2C_2O_4$. Set aside for 3 hours in a warm oven. Filter, dry, ignite and weigh as CaO.

(2) The Solution.

To the boiling solution add a few drops of HNO_3 and a little NH_4Cl solution, add NH_4OH cautiously until alkaline, boil and filter.

The precipitate is Al_2O_3, Fe_2O_3. Dry, ignite and weigh.

To the filtrate add $(NH_4)_2C_2O_4$ in slight excess, set aside for 3 hours in warm oven and filter. The precipitate is CaC_2O_4. Wash, dry, ignite and weigh as CaO.

Evaporate the filtrate to dryness in a pt. dish and ignite to expel ammonium salts. Cool, add H_2O, boil, filter and wash well. The precipitate is $Mg(OH)_2$. Dry, ignite and weigh as MgO. Transfer the filtrate to a weighed platinum dish, add a few drops H_2SO_4 and evaporate to dryness and ignite to constant weight. The residue consists of Na_2SO_4, $MgSO_4$, K_2SO_4. After weighing, dissolve in H_2O. Make the solution up to 50 cc. Mix thoroughly and divide into 2 equal portions of 25 ccs. each.

(*a*) To a portion of the above solution add a few drops of HCl, make alkaline with NH_4OH. Add with constant stirring a solution of HNa_2PO_4, set aside for 3 hours, filter, dry, ignite and weigh as $Mg_2P_2O_7$. Calculate this to $MgSO_4$ and after multiplying by 2 subtract from the weight of the alkalies above. Calculate the Mg as MgO.

(*b*) To the other portion of solution add a few drops of HCl then a solution of $PtCl_4$, evaporate on a water bath with some alcohol. Filter off the K_2PtCl_6, on a small tarred filter, dry and weigh. Calculate the weight to K_2SO_4 and after multiplying by 2 subtract from the weight of the sulphates above. The difference in weight after subtracting the K_2SO_4 and $MgSO_4$ is Na_2SO_4. Calculate the Na to Na_2O and K to K_2O.

(3) *So_3.*

Take 50 cc. of the original solution. Add 2 cc. concentrate HCl and evaporate on a water bath, in an open beaker to 150 cc. Add a hot 10 per cent. solution of $BaCl_2$ until precipitation is complete. Warm for an hour on a hot water bath and allow to settle for at least three hours. Filter, dry, ignite and weigh as $BaSO_4$. Calculate to SO_3.

Notes:—

(4) CO_2. This is found by combining the Cl and SO_3 with the bases and then calculating the amount of CO_2 that would be required to convert the rest of the CaO and MgO into carbonates.

(5) Chlorine to be estimated as chlorine in chlorides.

Notes:—

BIOCHEMICAL OXYGEN DEMAND OF SEWAGE AND EFFLUENTS. RELATIVE STABILITY METHOD.

The relative stability method may be employed to obtain a measure of the putrescible material in sewages and effluents in terms of oxygen demand.

Procedure for Effluents: Divide the total available oxygen, including the oxygen of nitrate by the relative stability expressed as a decimal.

Procedure for Sewages: Make one or two solutions with fully aerated distilled water of known dissolved oxygen content. Tap water may be employed if it is free from nitrates. Vary the relative proportions of sewage and water to be employed to give a relative stability of 50 to 75. Unless seals are used bring the water as well as the sewage in the temperature at which the mixtures are to be incubated before preparing the dilutions. During the manipulation avoid aeration. Having made the proper dilutions, determine the relative stability of each.

Calculate the oxygen demand in parts per million by the formula:

$$\text{Oxygen demand} = \frac{0\,(1\text{-p})}{\text{Rp}}$$

In this formula, 0 is the initial dissolved oxygen of the diluting water, p is the proportion of sewage; and R is the relative stability of the mixture. Ordinarily the available oxygen is crude sewage, septic tank effluents, settling tank effluents, and trade wastes can be neglected.

RELATIVE STABILITY OF EFFLUENTS.

Reagent.—*Methylene blue solution.*

A 0.05 per cent. aqueous solution of methylene blue, preferably the double zinc salt or commercial variety.

Collect the sample in a glass-stoppered bottle holding approximately 150 cc. If the dissolved oxygen is low observe precautions similar to those used in collecting samples for dissolved oxygen.

Add 0.4 cc. of the methylene blue solution to the sample in the 150 cc. bottle. As methylene blue has a slightly antiseptic property be careful to add exactly 0.4 cc. Add the methylene blue solution preferably below the surface of the liquid after filling the bottle with the sample. If the methylene blue is added first do not allow the liquid to overflow as colouring matter will thus be lost. Incubate the sample at 20°C for ten days. Four days' incubation may be considered sufficient for all practical purposes in routine plant-control work. If quick results are desired, incubate the sample at 37°C. for five days, using suitable stoppers to prevent the loss and reabsorption of dissolved oxygen. The bacterial flora at 37°C. is different from that at 20°C. The lower temperature is more nearly the average temperature of surface waters, and therefore the higher temperature should be used only when quick approximate results are essential. Observe the sample at least twice a day during incubation. Give a sample in which the methylene blue becomes decolourized, a relative stability corresponding to the time required for reduction (see Table). For routine filter control ordinary room or cellar temperature gives fairly satisfactory results. For accurate studies, room temperature incubation is very undesirable, as the fluctuations in temperature which are ordinarily not noticed are responsible for appreciable deviations from the true values of relative stability. If the samples are incubated less than ten days at 20°C., and are not decolourized, place a plus sign after the stability value in order to indicate that the stability might have been higher if more time had been allowed. In applying this test to river waters it often happens that the blue colouring matter is removed either partly or completely through absorption by the clay which many rivers carry in suspension.

True relative stabilities cannot be obtained for such waters except by determining the initial available oxygen at the start and bio-chemical oxygen demand on incubation at 20°C. for ten days. Germicides, such as hypochlorite of lime, if present, in sufficient quantity, vitiate the results. If a sample contains free chlorine, therefore, store it about two hours, or until the chlorine is gone, and then add methylene blue.

The Table gives the relation between the time in days to decolourize methylene blue at 20°C. and the relative stability number of ratio of available oxygen to oxygen required for equilibrium, expressed in percentage.

RELATIVE STABILITY NUMBERS.

Time required for decolorization at 20° C.	Relative Stability.	Time required for decolorization at 20° C.	Relative Stability.
Days	Percentage	Days	Percentage
0.5	11	8.0	84
1.0	21	9.0	87
1.5	30	10.0	90
2.0	37	11.0	92
2.5	44	12.0	94
3.0	50	13.0	95
4.0	60	14.0	96
5.0	68	16.0	97
6.0	75	18.0	98
7.0	80	20.0	99

The theoretical relation is, $S=100\ (1-0.794t20)$. The relation between the time of reduction at 20°C. and that at 37°C. is approximately two to one, but if an observer incubates at 37°C. he should work out his own comparative 37°C. table or factor.

A relative stability of 75 signifies that the sample examined contains a supply of available oxygen equal to 75 per cent. of the amount of oxygen which it requires in order to become perfectly stable. The available oxygen is approximately equivalent to the dissolved oxygen plus the available oxygen of nitrate and nitrite. Nitrite in sewage is usually so low as to be negligible.

ANALYSIS OF SEWAGE SLUDGE AND MUD DEPOSITS

COLLECTION OF SAMPLES.

Collect a representative sample of the material. In general more than one sample should be taken from a spot and a large number of samples should be collected rather than a few large samples. If the surface layer is darker and a lower layer consists of pure clay, sample only the surface layer. Samples may be analyzed either separately or as composites of careful mixtures. After the sample has settled a few minutes roughly drain or siphon the excess water. Allow sewage sludge to stand for one hour before draining it free from excess water unless it is essential to determine the moisture content of the sample originally collected. If sludge cannot be analyzed within twenty-four hours it is better not to use air-tight bottles and to add small quantities of chloroform and keep in the ice box to retard decomposition. At the time of collection carefully examine mud from the bottom of surface water for evidence of sewage pollution and macroscopic and microscopic animal and plant organisms. Record the predominant species. Note the physical appearance of the material, particularly its colour, odor, and consistency. Express all analytical results in percentage on a dry basis.

REACTION.

Determine the reaction by diluting a definite quantity of the wet sludge and titrating by the methods given under alkalinity and acidity (pp. 35-39 and 39-41).

SPECIFIC GRAVITY.

Weigh to the nearest tenth of a gram a wide-mouthed flask of 100 to 300 cc. capacity, according to the quantity of material available. Then completely fill the flask with distilled water to the brim and weigh it again. Empty the flask and fill it completely with fresh sewage sludge or mud. If the material is of such consistency that it flows readily fill the flask to the brim and weigh. The specific gravity is equal to the weight of the sludge or mud divided by the weight of an equal volume of distilled water.

If the material does not flow readily fill the weighed flask as completely as possible without exerting pressure during the procedure. Weigh and then fill the flask to the brim with distilled water. Let it stand for a few minutes, until trapped air has escaped, then add more water if necessary and weigh. Subtract the weight of the added water from the weight of the water that completely fills the flask; the specific gravity is equal to the weight of the material divided by this difference. Record the specific gravity only to the second decimal place.

MOISTURE.

Heat approximately 25 grams of sludge or mud in a weighed nickel dish on the water bath until it is fairly dry. Dry the residue in an oven at 100°C., cool and weigh. Repeat to approximately constant weight. The loss in weight is moisture.

VOLATILE AND FIXED MATTER.

Ignite, at dull red heat in a hood, the residue from the determination of moisture until all the carbon has disappeared. Cool the residue in a desiccator and weigh it. The residue is the fixed matter. The volatile matter is the difference in weight between the original dried sludge and the ignited sludge.

TOTAL ORGANIC NITROGEN.

Preparation of sample.—For the determination of organic nitrogen and fats dry approximately 50 to 75 grams of the sludge or mud in a porcelain dish first on the water bath and finally in the hot water oven until all the moisture has disappeared. Grind the dry material to a fine powder and keep it in a glass-stoppered bottle.

Reagents:

(a) *Sulphuric acid,* concentrated nitrogen free.
(b) *Copper sulphate solution.* Ten per cent.
(c) *Potassium permanganate.* Crystals.

Weigh accurately 0.5 gram of dried sludge or 5.0 grams of dried mud and put it into a 500 cc. Kjeldahl flask. Digest it with 20 cc. of sulphuric acid, or more if necessary, and 1 cc. of copper sulphate solution to assist the oxidation. Boil for several hours until the liquid becomes colorless or slightly yellow. Oxidize the residue with 0.5 gram of potassium permanganate and neutralize with NaOH solution free from NH_3 and distil as in the organic nitrogen.

ETHER-SOLUBLE MATTER.

Fats are usually determined only on sewage sludge, but some mud deposits contain small quantities due to the presence of trade wastes.

Procedure.—Weigh 0.5 to 25 grams of dry material according to the quality of the sludge or mud. Add water to the weighed portion in a porcelain dish and acidify the mixture with N/50 sulphuric acid in the presence of litmus tincture or azolitmin solution as indicator. Avoid adding too much acid as an excess gives too high results on account of fatty acid residues. Evaporate the acidified mixture to dryness on the water bath, and heat it in the hot air oven at 100°C. two to three hours. Extract the dry residue with boiling ether, rubbing the sides and bottom of the dish to insure complete solution of the fat. Three extractions with ether are usually sufficient. Filter the ether solution through a 5 cm. filter paper into a small flask. Evaporate the ether slowly, dry the fatty extract for half an hour at 100°C., cool in a desiccator, and weigh. If it is desirable, particularly with certain industrial wastes, to determine the quantity of saponified fat determine the fats with and without the addition of acid. The difference between the quantities found by the two determinations is the content of saponified fat.

FERROUS SULPHIDE.

The liberation of hydrogen sulphide on adding dilute hydrochloric acid to a sludge indicates the presence of ferrous sulphide. As ferrous sulphide quickly oxidizes on exposure to air a quantitative determination of this constituent must be made immediately after collection of the sample.

Procedure.—Heat a definite portion of the sludge with hydrochloric acid in a flask. Pass the liberated gas through bromine water or hydrogen peroxide. Determine gravimetrically the sulphate in the oxidizing solution, and calculate the equivalent of ferrous sulphide by multiplying the weight of barium sulphate by 0.376.

VALUATION OF BLEACHING POWDER.

N/10 Sodium Thiosulphate Solution.

Reagents:

(*a*) Note.—Standardization of the sodium thiosulphate solution. Twenty-five cc. of the N/10 iodine solution are transferred by means of a pipette to a beaker, diluted with an equal volume of water. The N/10 thiosulphate solution is then run in slowly from a burette until the brown colour of the iodine solution pales perceptibly and the liquid assumes a straw colour. One or two drops of starch solution are then added and the thiosulphate solution delivered drop by drop until the blue colour is just discharged. If the solutions are strictly decinormal, 25 cc. of the thiosulphate solution should be used and 1 cc. of the thiosulphate solution will be oxidized by 0.0127 grams of iodine or 0.00355 gms. chlorine. The strength should be recorded on the label.

24.8 gms. of $Na_2S_2O_3.\ 5H_2O$ are dissolved in a litre of distilled water at 15°C.

(*b*) *N/10 iodine solution.*

1.27 grams pure resublimed powdered iodine are weighed into a 100 cc. flask, 20 cc. of a 10 per cent. solution of potassium iodide (free from iodate) is then added and the mixture shaken gently until the iodine is dissolved. It is then diluted to a 100 cc. with water at 15°C. Keep in the dark in a well stoppered bottle.

(*c*) *Starch solution.*

One to two grams of powdered white potato starch are mixed with 5 to 6 cc. of cold water in a 250 cc. beaker. Pour on the mixture boiling water until the appearance of the mixture changes suddenly to that of a semi-translucent gelatinous substance. Then add cold water until the beaker is nearly full. Settle and decant the clear supernatant liquid. Add drop of chloroform as preservative.

(*d*) *Potassium iodide solution.*
Five grams of potassium iodide in 100 cc. of water.

(*e*) *Acetic acid.*
Five normal acetic acid.

Analysis.

About 10 grams of the bleaching powder to be examined are weighed into a porcelain mortar, and rubbed down with a small quantity of water until the mixture has the consistency of thin cream; settle for a moment or two and decant the milky liquid into a litre flask. The residue is then ground down with a little more water and the process is repeated until the last traces have been transferred to the flask. The mixture is made up to a litre with water and thoroughly shaken. Twenty-five cc. of the milky fluid are transferred by means of a pipette to a small beaker, the contents of the flask having been well shaken just prior to the withdrawal of the sample—10 cc. each of the KI solution and acetic acid are added. The titration of the thiosulphate is carried out as in the standardization of the thiosulphate against the iodine solution. As the strength of the thiosulphate is known the percentage of available chlorine in the original sample is easily calculated.

NOTE.—The standardization of the thiosulphate and the estimation of the Cl should always be done in duplicate.

Notes:—

A simple method to determine the presence of free chlorine in water supplies for Medical Officers of Health and Sanitary Inspectors.

The sample to be tested is put in a white porcelain dish and 2 cc. of the acetic acid solution (as above), 2 cc. of the potassium iodide solution (as above), and 2 drops of starch paste are added. Stir well and allow to stand for 5 minutes.

A *blue reaction* indicates the presence of free chlorine.

This method can be made roughly quantitative by measuring 25 cc. of the sample into a white porcelain dish and adding 2 cc. of acetic acid, 2 cc. pot. iodide solution, 2 drops paste. Compare this colorimetrically with a 25 cc. sample of a known chlorine solution treated in the same way.

VALUATION OF SULPHATE OF ALUMINUM

Reagents required:

(*a*) *Concentrated hydrochloric acid* sp. gr. 1.20.
(*b*) *Ammonium hydroxide* sp. gr. 0.90.
(*c*) *25 per cent. sulphuric.*
(*d*) *Methyl orange solution.*
(*e*) *Phenolphthalein solution.*
(*f*) *Bromine water.*
(*g*) *N/22 stannous chloride.* Should be frequently standardized against iron—1 cc. N/20 stannous chloride=0.0028 grams of iron estimated in the ferrous state.
(*h*) *Normal sodium hydroxide solution*—free from carbonate.

To be determined:

Aluminium oxide.
Ferrous oxide.
Ferric oxide.
Basicity ratio.
Free sulphuric acid.

INSOLUBLE MATTER.

Dissolve 10 grams of the crushed sample (1/8 to 1/4-inch diameter) in 100 cc. water and digest at boiling temperature for one hour. Filter through a tared Gooch crucible. Wash the insoluble matter with freshly-boiled hot water. Dry to constant weight at 100°C. Cool and weigh, report as per cent. insoluble matter.

OXIDES OF ALUMINIUM AND IRON.

Dilute the filtrate from above to 500 cc. with water free from carbon dioxide. Measure 50 cc. of the solution into a 250 cc. beaker. Add about 150 cc. of water and 5 cc. of hydrochloric acid and a few drops of nitric acid and boil. Add a few drops of ammonium chloride solution then ammonium hydroxide in slight excess. Digest for a few minutes at 100°C. Wash by decantation through a filter. Dry, ignite in a blast, cool and weigh. If much iron is present ignite the paper separately.

Subtract the total iron expressed as oxide and report the difference as aluminium oxide in percentage.

TOTAL IRON.

Dissolve 10 grams of the sample in 50 cc. of freshly-boiled distilled water, add 5 cc. concentrated hydrochloric acid and 1 cc. of bromine water. Evaporate to dryness. Dissolve the residue in water and wash into a flask making the volume up to 50 cc. Add 50 cc. concentrated hydrochloric acid, boil and titrate as hot as possible with N/20 stannous chloride.

FERRIC IRON.

Dissolve 20 grams in 50 cc. of boiling distilled water to which has been added 50 cc. of hydrochloric acid. Keep the mixture boiling till the sample is dissolved. Keep flask full of carbon dioxide by adding occasionally small amount of sodium carbonate. When sample is completely dissolved titrate immediately with N/20 stannous chloride.

FERROUS IRON.

Is calculated as the difference between the total iron and the ferric iron. Per cent. difference x 0.9 is the per cent. of ferrous oxide.

NOTE.—A rough method of estimating the total iron is to dissolve a sample and estimate the iron colorimetrically, as given for the estimation of iron in water.

BASICITY RATIO.

Fifty cc. of the filtrate from the determination of insoluble matter is pipetted to a 200 cc. casserole diluted to 100 cc. and titrated at boiling temperature against N/1 sodium hydroxide solution, using phenolphthalein indicator. The percentage of acidity in equivalent of sulphuric acid=number of cubic centimeters of sodium hydroxide x 4.9.

The percentage of sulphuric acid equivalent to the determined aluminium and iron oxide is calculated by the following formula:

$$2.88 \text{ x } Al_2O_2 + 1.83 \text{ x } Fe_2O_3 + 1.36 \text{ x } FeO.$$

If the percentage of acid equivalent is less than found by titration the difference is reported as percentage free acid, if greater the difference divided by 2.88 is the percentage equivalent to the excess aluminium oxide present. Divide this excess by the percentage of total aluminium oxide and report quotient as basicity ratio.

Notes:—

A simple method by which Medical Officers of Health and Sanitary Inspectors can detect the presence of alum in water supplies, using a solution of hematoxylin.

Hematoxylin, $C_{16}H_{14}O_6$, an extract of logwood is a colourless substance forming white or sometimes slightly yellow crystals; is slightly soluble in cold water but readily in hot water, alcohol, or ether. It has no dyeing property, is feebly acid and rapidly absorbs oxygen forming hematin, $C_{16}H_{12}O_6$, which is brownish red and possesses dyeing property. The commercial hematoxylin is really hematin (Allen's Organic Analysis, Vol. V, page 404.)

The following method for the detection of alum is recommended:

Reagent:

(1) Hematin solution.

Shake vigorously 0.25 grams (3.86 grains) of commercial hematoxylin in 100 cc. alcohol until a reddish-brown solution is obtained.

Measure 2cc. of this solution into a 100 cc. Nessler tube (if a Nessler cannot be obtained a clean glass vessel or casserole of 100 cc. capacity will do) and add 100 cc. of the sample to be tested. Allow to stand 5 minutes.

A purple colour imparted to the contents of the tube indicates that alum is present. This test while extremely delicate (one part of alum per million can be easily detected) is merely qualitative and will only indicate whether or not there is a trace of alum in solution in the water under inspection.

CONVERSION TABLE.

1 cu. in. = 16.387 c.c.
1 cu. ft. = 6.24 imp. gals. = 28.315 l.
1 cu. ft. = 62.355 lbs. at 16.5°C.

1 fluid oz. = 29.574 c.c.
1 quart = 946.6 c.c.
1 gallon U.S. = 231 cu. in. = 3.785 l.

1 grain = 0.06480 grams.
1 oz. avd. = 28.35 grams.
1 oz. apoth. = 31.103 grams.
1 lb. avd. = 453.593 gms.

1 litre = 1.057 quarts.
1 gram = 15.432 grains.
1 c.c. = .034 fluid oz.

In Solution.
1 grain per gal. = .017118 g. per l.
1 gram per litre = .008345 pds. per gal.
1 gram per litre = .06242 pds. per cu. ft.
1 gram per gal. = 265 parts per million.
1 grain per gal. = 17 parts per million.

APPENDIX "A"

The reports appearing in this Appendix were received from the Secretaries of the Local Boards of Health of the cities and towns of the Province of Ontario, in conformity with section 23, ss. 3, of the Public Health Act, and have been edited by the Secretary of the Board.

BELLEVILLE.

BELLEVILLE, ONT., March 26th, 1920.

To the Chairman and Members of the Local Board of Health, Belleville, Ont.

GENTLEMEN,—I beg to submit herewith the following report for the year 1919:

I made three thousand five hundred and sixty-seven (3,567) calls for sanitary purposes, and must state that I find the citizens more ready each year to try to keep everything clean and sanitary around their premises.

During the year I placed under quarantine twenty-seven (27) cases of diphtheria, one death resulting; twenty-nine (29) cases of smallpox, no deaths. There were also reported the following:

Nine (9) deaths from tuberculosis.
Seventy-five (75) cases of measles, no deaths.
Four (4) cases of scarlet fever, no deaths.
Three (3) cases of typhoid fever, no deaths.
Three (3) cases of pneumonia, three (3) deaths.
One (1) case of influenza, one (1) death.
Deaths from all other causes, 167.

I wish to call your attention to the fact that a large number of deaths registered in the city are cases brought to the General Hospital from points in the surrounding country. I might also state that the origin of the three cases of typhoid fever was traced to points outside of the city.

From milk tests made during the year, the quality was found fairly satisfactory. In a few cases, warnings were given which, I believe, had the desired effect of an improvement.

Samples of the water used by the city were sent to Toronto on six different occasions for testing and in every case the analysis was very satisfactory.

I have been closely watching all produce offered for sale on our public market, and in a few cases have ordered things destroyed. All butcher shops, restaurants, fruit stores and bake shops have been frequently inspected, and I have found the owners quite willing to act on any suggestions offered in order to place their premises in a strictly sanitary condition.

Fifty-one (51) sewer connections were ordered during the year, which now leaves the parts of the city served with sewerage practically free from outside closets of any description.

In summing up the whole situation, I might say that all of our citizens seem to be gradually becoming desirous of co-operating with the Board of Health in having a clean, healthful city for our home.

Yours respectfully,

THOS. F. WILLS,
Sanitary Inspector.

BRANTFORD.

BRANTFORD, November 15th, 1919.

To the Chairman and Members of the Board of Health.

GENTLEMEN,—In accordance with the Public Health Act, I beg to submit my annual report for the year ending October 31st, 1919, upon the sanitary conditions of the City of Brantford.

Upon returning from long service overseas with our armies in France, Belgium and Germany, I assumed the duties of Medical Officer of Health on August 1st, of this year. As a result, it is impossible for me to offer any detailed observations upon health conditions in our city prior to August 1st. I have, however, prepared certain statistics given below, which show in a comparative way the prevalence of various diseases in our community, and which give other information of a statistical nature.

The hardships of a long and cruel war, and the ravages of the greatest epidemic of disease which has afflicted the human race in modern history, have left our city strong and virile, and filled with the determination to have a healthier, happier, bigger Brantford, and to give our children the chance of growing into a fitter race. The fact that one-third of our volunteers and draftees were found, upon examination to be unfit to bear arms against the enemy, opened our eyes to the supreme importance of public health work, and to the necessity of having a health department fully equipped to detect and fight preventable defects and diseases. As a result of these impulses, the City Council showed its appreciation and understanding of conditions by appointing a full-time health officer. The appointment of a full-time health officer carried with it the implication that Brantford having taken this step was willing and anxious to go forward with the object of carrying out all necessary reforms to secure a healthier city, and it is in this spirit that this report is presented.

The provision of an abundant, clean and safe water supply is a public health measure. We have a safe water. It is made safe by the addition of chlorine which kills off all disease germs, but with Brantford's steady increase of population, the question of augmenting our water supply will naturally soon arise, and when it does arise, I would recommend that preliminary treatment of the water be investigated with the object of ensuring a cleaner water.

The City Council, on November 3rd, passed two by-laws under whose workings it is expected next year to obtain a clean and safe milk supply. This action of the Municipal Council again exemplified the progressive character of our city, and is another distinct advance along the path of health reform.

The proper treatment and disposal of sewage is a health problem, and I should like to point out that it is an offense against the law for any municipality to deposit in any of the rivers of Ontario, any animal matter or filth. Brantford offends against the law by emptying its sewage untreated into the Grand River. Paris, likewise, offends and Brantford suffers as a result, but those who live in glass houses should not throw stones. Unless we put our house in order soon, without doubt, the Provincial Board of Health will be calling us to account.

The proper disposal of garbage and kitchen waste is a health problem. Our garbage is disposed of by being carted to and dumped on certain vacant lands. This is not only unsightly, but likewise, unsanitary. All garbage should be destroyed, and it is a question for consideration and report whether our garbage should be destroyed by feeding to hogs, by reducing it to obtain vegetable oils, or by incineration.

The most important method of controlling epidemics of communicable diseases is undoubtedly by isolating all infected persons. The provision of adequate isolation accommodation is an essential weapon with which to fight these diseases. Brantford has provided accommodation for smallpox cases which should, in all ordinary circumstances, be adequate, but we have failed to provide a modern, well-constructed isolation hospital with sufficient room to accommodate the normal number of scarlet fever, diphtheria, and measles cases. This is a subject which urgently needs solution, and it can only be solved by providing adequate accommodation. It will be observed in the vital statistics tables given below that during the year just passed that 77 cases of diphtheria were reported. This is the largest number of diphtheria cases reported in the last five years. Frequently the isolation hospital was full, and it is felt that we cannot fight diphtheria successfully unless accommodation sufficient to isolate these patients is provided. There is no doubt but that from a money standpoint alone it will pay the City of Brantford to build a modern isolation hospital.

It is a well-known fact that children are the chief sufferers from communicable diseases, and any programme which will serve to check the ravages of these diseases among children, deserves earnest consideration. It is for this reason that I venture to suggest that skilled medical supervision of our school children, is a subject for deep consideration. Communicable diseases are like fire. Once they have gained sufficient headway, nothing seems to stop them until they have burnt themselves out; like fire, if they are caught in the ember stage, they may be stamped out. School medical inspection, it is felt, affords a means of detecting and stamping out communicable diseases before they have spread beyond control.

In a report dated August 15th, upon the reorganization of the Health Department, it was pointed out to the Board that the staff of the Health Department should be increased by two additional members, in order to effectively carry on the fight against preventable diseases. This report was submitted to the City Council early in October, but was laid aside for further consideration. It is earnestly suggested that this report should be acted upon in order to build up an efficient organization.

The Venereal Disease Prevention Act was put into effect in October, and physicians of the city are cordially co-operating with the Health Department. It is expected that the Provincial Board of Health will, in the near future, ask us to establish a venereal disease clinic in this city, where the unhappy sufferers from this widespread plague may receive the most up-to-date, scientific treatment, free of charge. It is understood that the Provincial Board of Health will bear the greater share of the cost of conducting such a clinic. There is too little plain speaking about venereal diseases. There is a conspiracy of silence which serves as a cloak under which these diseases yearly claim an appalling number of victims among our manhood and womanhood, and too often the infection is later transferred to the young and helpless children. Any programme which aims to lessen the incidence of venereal disease in our midst deserves the support of the whole community.

During the period August 1st to October 31st, thirty persons were vaccinated against smallpox by the M.O.H. Forty-five preventive doses of diphtheria antitoxin were given to contacts with persons suffering from diphtheria. Forty-seven bacterial examinations were made of suspected diphtheria throats and twelve of these were found to carry the diphtheria germ.

Bacteriological examinations of Brantford water supply were obtained eight times from the Provincial Laboratory, at Toronto, and in this way control was maintained over the safety of our water supply. Eight wells were also examined as to their bacterial purity, and in most cases these wells were proven to contain harmful bacteria.

In closing this report, I wish to acknowledge the cordial way in which the members of the Board of Health have supported the officials of this department, and to thank them for their sympathy and help in the year just passed. Co-operation, mutual trust and respect are always essential if the best work is to be done, and the present board has displayed these qualities to the fullest extent.

Your obedient servant,

W. L. HUTTON, M.D.,
M.O.H.

VITAL STATISTICS—HEALTH YEAR ENDING OCTOBER 31ST, 1919.

Population (Assessor's figures)	30,549
Births (exclusive of still births)	622
Deaths (exclusive of still births)	445
Marriages	288
Infant mortality rate (per thousand births)	106.1
General death rate (per thousand population)	14.5
Birth rate (per thousand population)	20.36

COMPARATIVE VITAL STATISTICS TABLE.

—	1915		1916		1917		1918		1919	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
Births	713	28	686	25.78	701	25.3	691	24	622	20.36
Deaths	291	11.4	390	14.6	351	12.7	498	17.7	445	14.5
Population	25,420		26,601		27,664		28,725		30,549	

Still births are not included in any of the calculations. In calculating the death rates no deductions were made for deaths of persons at the Brantford General Hospital whose home was outside of Brantford.

COMPARATIVE INFANT MORTALITY TABLE PER 1,000 BIRTHS.

—	1915	1916	1917	1918	1919
Rate	106	113.9	97.9	128.6	106.1

Still births not included in any of the above calculations.

BRANTFORD, November 13th.

To the Chairman and Members of the Board of Health, Brantford.

GENTLEMEN,—I herewith submit the report of the Sanitary Department for the year ending October 31st, 1919.

One hundred and forty-four cases of contagion has been reported during the past year, an inspection of each home being made. All dwellings where diphtheria, scarlet fever, smallpox and tuberculosis occurred were disinfected. In each case, the public and separate schools, also the library were notified.

Seventy-four notices have been served during the past year to abate nuisance, and I can report that the law has been complied with in a majority of the cases dealt with.

There have been 102 notices served to have sewer connections made and out of that number I find 72 have complied with the law, leaving 30 of the orders not complied with. In a number of cases the Board gave the owners an extension of time.

We have had a number of complaints of chicken houses being kept in an unsanitary condition owing to there being no law fixing the distance they may be kept from a dwelling.

The regulation prohibiting auctioneers from selling old mattresses on the market without being disinfected, has been well observed. There are practically no mattresses offered for sale at the present time.

Night Soil Collection.—We have at the present time about 500 earth closets in the city. This work has been well looked after during the past year. In view of the city taking in Parkdale District, the number of earth closets will be increased by about 300.

Garbage Collection.—During the early part of the year many complaints were made of the service. About April first, the city took over the service and since that time there has been no trouble. There have been no complaints of the condition of the dumps, although I believe the time has come when a more up-to-date system of disposal should be provided.

Another matter I wish to call your attention to is the great need of more public sanitary conveniences in the outlying parts of the city. There should be at least, three more lavatories provided. Say, one near St. Andrew's Park, one at Alexandra Park, and one near Tutela Park. The only present public convenience is that on the Market Square, and that is quite inadequate for a city of this size.

Tail Race.—This question has been before the Board of Health many times, but up to the present no definite solution has been found to abate the nuisance. I understand the Council has permission from the property owners directly affected, to have the Tail Race filled with garbage and ashes during the coming winter.

Housing Question.—This is a matter that I am unable to give a proper report on as there has been no survey made of the actual condition except by the many complaints reaching the office of conditions in many homes, although I believe the congestion has been somewhat relieved by the exodus of so many foreigners from the city. While there are some complaints about overcrowding, the trouble is not always found in dwellings occupied by foreigners.

During the past year I have been unable to do very much house to house inspection as my time has been fully taken up with the investigation of complaints that reach the office.

The operation of the ambulance has been under my supervision as well as the removal of smallpox patients.

I wish to call the attention of the Board to the condition of the isolation ambulance. In my opinion, the ambulance should be repainted. The hack purchased by the Board during the year is giving good satisfaction.

In conclusion, I wish to thank the members of the Board for courtesies extended during the past year.

All of which is respectfully submitted.

I remain,

Faithfully yours,

W. GLOVER.
Sanitary Inspector.

CHATHAM.

CHATHAM, ONT., December 1st, 1919.

ANNUAL REPORT FOR THE YEAR 1919.

To John W. S. McCullough, M.D., D.P.H., Chief Officer of Health, Toronto.

In presenting this, my annual report for the year, I must say that it has been a year of some anxiety to the local board, after our experience of last year with typhoid and influenza epidemics. It is a pleasure for me to be able to say that Chatham has been exceptionally free from all forms of contagious diseases; in all sixty-eight have been reported as follows: Measles, five cases; German measles, three; chicken pox, thirty-one; small pox, six; typhoid fever, three; diphtheria, thirteen, and tuberculosis, seven cases; with nine deaths, viz.: Seven of tuberculosis and two from diphtheria. A very close watch has been kept on the condition of the water supplied the citizens. One hundred and eighty-four samples having been collected and sent to the Provincial laboratories for bacterial and other analysis, besides those sent to city analyst, Dr. Mustard, a considerable number of these samples were gathered from private wells, of these, nearly all were found contaminated and ordered closed against further use until properly cleaned and another test had been made. Dr. Mustard made three daily tests of city water and was in a position to add more chlorine or reduce the amount as the condition of the water demanded.

The citizens, generally, have complied very faithfully with the boiling of all water used for domestic purposes for a period of at least four months, thus eliminating the danger from typhoid, when the water was unsafe. Samples were collected from every part of the city at the rate of four, twice each week, thus an almost continual check-up was kept on the local water situation. Our people were aroused after last year's epidemic and practically demanded of the Water Commissioners a pure supply of water at any cost. This will mean an outlay of from one-quarter to over half million dollars. Our city engineer, with many others, believes that the water from the Thames River can be made perfectly safe by installing the proper and modern equipment at a cost of not more than half that required to get it from Lake Erie, by going up the river for a distance of two or two and a half miles, while the lake would be fourteen miles. Much expert information has been had on both propositions each claiming theirs is the proper one to follow out, however, the Water Board have decided to request the City Council to submit a by-law to the people at the January elections to decide this momentous question finally, when we hope to have one of the best water supplies on this continent when either scheme is completed.

The two deaths from diphtheria were due, undoubtedly, to delay in calling the doctor. when it was too late to get any benefit from the use of antitoxin, one dying within half an hour after calling the physician, the other, an old lady who had the disease at least a week before a doctor saw her.

Milk supply for the year has been fairly satisfactory, though the price seemed high at times. The average daily supply is 2,500 quarts, 1,500 quarts are pasteurized while the rest is delivered, after being properly cooled. This quantity gives an average of a quart to every six persons; besides an average of 60 quarts of cream is sold in the city daily. The quality of nearly all the milk tested has been good this year, much better generally than that of 1918.

The population is 15,080, the number of births, 254, this means 17 per 1,000; the deaths were 198, not including those from outside the city which numbered 27, this means 13 per 1,000 deaths. Forty cases of venereal disease have been reported during the year, this does not seem possible that we have less than three per 1,000 among our civilian population. The returned veterans who may have been infected are being thoroughly looked after by the Government officials. We had hoped to report on a new isolation hospital, having been built this year, but there we are disappointed, as we have been unable to secure a satisfactory site to build on, hence, we will endeavor to overcome this the coming year.

SCHOOL NURSE'S REPORT IN BRIEF.

Miss Mary E. Northwood.

Number of inspections made were ten thousand during the year.

Number of children found having enlarged tonsils or defective breathing were one hundred and thirty-three. Of these, eighty were operated upon during the year for tonsils and adenoids.

We have three public schools, with an attendance of 1,700. Of these, thirty-three per cent. of all pupils visited their dentist for inspection of teeth.

She made one hundred and fifty home calls, while fifty children have received attention from an eye specialist. The nurse is employed by the Board of Education, but works in harmony with the local Board of Health. There is no doubt that Miss M. E. Northwood has done much efficient work during the year.

A full monthly report is handed the Board of Education.

SANITARY INSPECTOR'S REPORT FOR 1918.

David Holmes, Sanitary Officer.

Herewith, I submit my report for the year, as follows: There have been sixty-eight quarantine cards put up for contagious diseases, viz.: Thirty-one, chickenpox; thirteen, diphtheria; eight, measles, and smallpox, six cases; all of the above cases have been cared for and premises disinfected. There have been 184 samples of water gathered and sent either to the Toronto or the London laboratory for analysis. One hundred and eleven samples of milk have been collected and tested for dirt, butter-fat and solids. I have also inspected all herds of cows belonging to parties supplying the city vendors with milk and handed in a written report on each herd as to their condition, condition of the premises and of the equipment to the M.O.H. Inspected all laundries forty-seven times during the year, and all cafes forty-six times. Had eight different lots of pigs moved in accordance with our city by-law. Had six horses laid up as being unfit for work, notified the garbage men to gather up twenty-seven dead dogs and cats, destroyed one carcass of beef on order of the M.O.H. as unfit for human food, condemned one lot of sauerkraut for sale on the market. Inspected all slaughter houses and butcher shops. as well as all cellars of all the business places, investigated thirty-seven different complaints, gathered typhoid reports from the city doctors, had three old wells filled. The manure by-law has been well observed during the year, a number of old houses have been condemned by the M.O.H. with good results, and had 1,086 outside closets cleaned and lime used.

(Sgd.) THOS. L. MCRITCHIE,
M.O.H.

FORT WILLIAM.

FORT WILLIAM, ONT., November 1st, 1919.

To the Chairman and Members, Board of Health, Fort William, Ont.

GENTLEMEN,—In accordance with the provisions of the Ontario Public Health Act, I beg to submit herewith my annual report for the year ending October 31st, 1919.

VITAL STATISTICS.

Estimated population	19,940
Death rate per thousand population (excluding still births)	15.84
Death rate from influenza alone	5.61

These rates include all those who died in the municipality and all who died in other municipalities, and whose deaths were registered here. Fifty-three non-residents died here, twenty-nine deaths being due to flu.

Fifteen deaths were reported here of those who were not residents and who died in another municipality.

Birth rate per thousand population (excluding still births)	36.45
Infant mortality rate per thousand births	112.79

The five cases of typhoid fever reported were all in non-residents but one. This one was that of a male child, aged 5 years, who gave a negative widal. There has been no death from typhoid in the city since 1916.

The epidemic of scarlet fever is still with us. The reason is seen in the mildness of the cases. The death rate is less than one quarter of one per cent. There was but one death of a citizen. Two others died who were brought in for treatment from other municipalities.

Twenty-six persons were summoned to court during the year. The causes for summons were as follows:

Failing to report a communicable disease	1
Obstructing officer of law in discharge of his duty	1
Selling milk without a license and selling dirty milk	17
Selling milk without license	6
Breach of milk by-law	1

The following products and supplies from the Provincial Board of Health were distributed:

Diphtheria antitoxin	914,000 units
Tetanus antitoxin	30,000 "
Meningitis serum	20 C. C.
Tetanus antitoxin	30,000 "
Typhoid vaccine	12 doses
Smallpox vaccine	240 tubes
Wassermann tubes	105 "
Culture tubes	48 "
Influenza serum	3,500 C. C.

SMALLPOX.

There were no cases of this disease reported. Statistics for the last five years follow:

Year.	Cases Reported.	Deaths.
1915	8	0
1916	3	0
1917	2	0
1918	0	0
1919	0	0

SCARLET FEVER.

There were four hundred and nine cases of scarlet fever reported during the year. There was one death.

Year.	Cases Reported.	Deaths.
1915	18	0
1916	4	0
1917	110	3
1918	313	3
1919	409	1

Below appear the statistics by month, age, sex, recovery and death.

Month.	Cases.	M.	F.	Under 5 yrs.	5–9 years.	10–14 years.	15–19 years.	Over 19 years.	Re-covery.	Death.
1918										
Nov.	54	35	19	14	11	18	4	7	54	......
Dec.	53	23	30	9	17	12	3	12	52	1
1919										
Jan.	60	24	36	11	24	18	5	2	60	......
Feb.	58	26	32	11	25	12	4	6	58	......
Mar.	45	21	24	9	27	6	1	2	45	......
April	34	17	17	5	20	5	1	3	34	......
May	18	7	11	3	11	2	1	1	18	......
June	10	3	7	1	3	3	....	3	10	......
July	5	2	3	1	2	1	....	1	5	......
Aug	18	7	11	6	10	1	....	1	18	......
Sept.	19	11	8	4	8	4	....	3	19	......
Oct.	35	13	22	9	14	7	1	4	35	......
Total	409	189	220	83	172	89	20	45	408	1

Two cases of scarlet fever brought into the city for treatment are not included in the above summary. One died the same day as admitted to the hospital, and the other died the third day after being admitted.

DIPHTHERIA.

There were twenty-two cases of this disease reported, being ten more than last year. There was one death.

Year.	Cases Reported.	Deaths.
1915	25	2
1916	33	5
1917	13	1
1918	12	2
1919	22	1

MEASLES.

There were no cases of this disease reported and no deaths. Statistics follow:

Year.	Cases Reported.	Deaths.
1915	8	0
1916	581	7
1917	338	3
1918	12	0
1919	0	0

WHOOPING COUGH.

There were but two cases of this disease reported with no deaths. Statistics follow:

Year.	Cases Reported.	Deaths.
1915	33	1
1916	196	2
1917	10	17
1918	259	1
1919	2	0

ERYSIPELAS.

There was one case of erysipelas reported with no deaths. Statistics are as follows:

Year.	Cases Reported.	Deaths.
1915	5	0
1916	6	1
1917	13	1
1918	4	0
1919	1	0

CHICKENPOX.

Year.	Cases Reported.	Deaths.
1916	14	0
1917	97	0
1918	75	0
1919	31	0

RUBELLA.

Year.	Cases Reported.	Deaths.
1917	181	0
1918	25	0
1919	1	0

MUMPS.

Year.	Cases Reported.	Deaths.
1916	16	0
1917	90	0
1918	92	0
1919	1	0

PULMONARY TUBERCULOSIS.

There were ten cases reported with nine deaths, one of which was a non-resident who died here and one an out-of-town death reported here.

Year.	Cases Reported.	Deaths.
1915	28	23
1916	19	18
1917	15	12
1918	15	9
1919	10	9

VENEREAL DISEASES.

	Cases.
Syphilis	9
Gonorrhoea	22
Chancroid	0

TYPHOID FEVER.

There were five cases of typhoid fever reported, four of which were people who had been in town but a few days from other cities. There were no deaths.

Year.	Cases Reported.	Deaths.
1915	23	7
1916	18	2
1917	11	0
1918	5	0
1919	5	0

A general resumé of the communicable diseases reported follows:

	Cases Reported.	Deaths.
Measles	0	0
Rubella	1	0
Mumps	1	0
Scarlet fever	409	1
Whooping cough	2	0
Chickenpox	31	0
Erysipelas	1	0
Typhoid fever	5	0
Smallpox	0	0
Diphtheria	22	1
Tuberculosis	10	9
Poliomyelitis	1	0
Cebro-spinal meningitis	1	0
Primary pneumonia	1	0
	485	11

ISOLATION HOSPITAL REPORT.

Patients admitted		153
Scarlet fever	152	
Diphtheria	1	
	153	153

Hospital days, 5,469.

ACCOUNTS.

Salaries		$2,582 50
Maintenance account		5,500 17
		$8,082 67
Credits: Collection of accounts	$801 00	
Garden produce	235 20	
		1,036 20
Net cost		$7,046 47
Cost of patient per day		$1 47

There was spent also $619.11 on capital account.

MEDICAL RELIEF.

The following is the report of medical relief work for the year:

	Visits Made.	Office Consultations.
1918—November	8	0
December	7	0
1919—January	7	2
February	6	0
March	20	1
April	14	1
May	4	0
June	5	1
July	11	0
August	5	1
September	1	1
October	0	3
	88	10

Also I administered four anaesthetics in the month of June.

LABORATORY REPORT.

The following examinations were made:

Milk samples from dairymen for dirt and butter fat	156
Samples from householders	12
Samples or breast milk	16
Samples of cream	38
Swabs for diphtheria	48
Smears for gonococci	12
Sputa for T. B.	29
Blood to Toronto for widal	6
Sundry examinations	1

A detailed report of this work follows:—

Dealer.	Number of Tests.	Fat Average.	Clean.	Soiled.	Dirty.
Jas. Otway	19	3.56	15	4	....
H. Crabtree	18	3.42	16	2	....
F. McCarthy	20	3.26	16	2	....
Ed. Otway	11	3.22	7	3	1
Crescent Dairy	24	3.17	11	5	8
B. Webster	19	3.14	17	2	....
Thompson Bros	24	3.13	13	7	4
F. Morris	21	3.10	16	4	1

REPORT OF VISITING HEALTH NURSE.

Dr. E. B. Oliver, Medical Officer of Health, Fort William, Ont.

DEAR SIR,—I beg herewith to submit my report for the year ending October 31st, 1919, as follows:

During the year I made 1,784 visits to infants as follows:

Month.	Number of Visits.	New Born Babes.	Breast Fed.	Mod. Milk.	Cons. Milk.	Patent Foods.	Miscellaneous.
May	239	160	107	17	....	13	23
June	389	109	84	18	....	7	....
July	312	19	19	....	....	....	....
August	414	....	....	....	....	....	....
September	297	8	8	....	....	....	....
October	133	36	36	....	....	....	....
	1,784	332	254	35	....	20	23

Visits to school absentees .... 426 House to house calls 20

Respectfully submitted,

F. K. Fisher.

Report of Assistant Visiting Health Nurse.

Month	Number of Visits	New Born Babies	Breast Fed	Mod. Milk	Cons. Milk	Patent Foods	Miscellaneous
June	100	100	60	23	....	2	15
July	412	213	127	41	42	3	....
August	339	41	15	7	5	14	....
September	193	....	....	....	....	....	....
Total	1,044	354	202	71	47	19	15

School absentees .... 593 House to house calls 58

Respectfully submitted,

I. Gamble.

Miss Cummins made to absentees, 1-3 calls; house to house calls, 21.

In addition to the nurses employed by the Board of Health, two nurses are employed by the Board of Education. I have been unable to obtain a report of their work.

Births Registered in the City of Fort William.

For the year ending October 31st, 1919.

Month.	Total.	Males.	Females.	Twins.
1918				
November	71	33	38	2
December	54	31	23	1
1919				
January	70	32	38	....
February	59	33	26	....
March	66	38	28	1
April	64	37	27	2
May	55	28	27	....
June	75	44	31	....
July	36	23	13	2
August	66	34	32	....
September	49	25	24	....
October	62	28	34	1
	727	386	341	9

STILL BIRTHS.

Month.	Males.	Females.	Total.
1918			
November	2	1	3
December	....	1	1
1919			
January	2	2	4
February	1	....	1
March	1	3	4
April	2	....	2
May	1	....	1
June	2	....	2
July	1	1	2
August	2	2	4
September	....	....	....
October	2	1	3
	16	11	27

INFECTIOUS DISEASES.

Fumigation having been ordered of schools and dwellings after scarlet fever cases, considerable expense has been incurred in fumigants and a good deal of time occupied in the operation.

SUMMARY OF INSPECTIONS.

Date.	Abattoir Butchers.	Dairies.	Bakeries.	Cafes.	Gen. Inspection	Communicable Diseases.	Fumigating Houses	Fumigating Schools	Totals
1918									
November	63	25	3	10	56	960	....	....	1,117
December	72	28	25	56	78	45	....	....	304
1919									
January	45	36	18	30	213	61	....	....	403
February	72	31	12	15	394	103	40	4	671
March	96	52	19	25	1,077	57	38	26	1,390
April	53	28	12	14	302	17	17	13	466
May	111	45	16	33	151	34	30	5	425
June	109	46	23	32	116	12	10	4	352
July	59	19	6	7	63	8	....	....	162
August	78	57	31	41	149	....	4	....	300
September	80	50	27	36	131	5	17	8	354
October	72	36	31	29	146	2	3	14	233
Total	910	453	223	328	2,876	1,304	159	74	6,327

Respectfully submitted,

W. E. STANLEY.

ABATTOIR REPORT.

During the year the abattoir has been in constant operation. The maintenance and expenses are heavier than last year. Owing to the subsidence of the floor in the cooler, most of the floor had to be renewed at a cost of nearly one hundred dollars. Two of the switches on the beef track had to be replaced and thirty additional rollers were obtained.

The work done during the past year has increased as shown in summary.

The following meats were condemned and destroyed:

Two cows and one calf affected with tuberculosis.
One cow—actinomycosis.
One hog—Putrid.

All butcher stores have been regularly inspected and found generally in a sanitary condition and the meats were well looked after during the hot weather.

SUMMARY OF WORK DONE AT ABATTOIR.

Month.	Cattle	Calves.	Hogs.	Sheep.	Total.	Revenue.	Expenses.	Inspections.
1918						$ c.		
November	87	26	51	....	164	6 00	58 55	63
December	116	60	27	41	244	196 50	140 23	72
1919								
January	78	30	3	....	111	85 25	64 30	45
February	28	7	....	....	35	122 10	98 00	72
March	59	24	....	....	83	25 00	49 62	96
April	65	30	10	....	105	110 50	45 00	53
May	52	53	35	1	141	52 25	157 13	111
June	61	49	25	....	135	64 25	54 50	109
July	54	70	13	52	189	66 00	45 00	59
August	75	46	5	36	162	100 00	69 60	78
September	101	67	25	81	274	100 00	60 41	65
October	74	57	4	6	141	324 75	45 20	72
Total	850	519	198	217	1,784	1,252 60	887 56	895
Outstanding Accounts						59 00		
Credit Balance						....	424 04	
						1,311 60	1,311 60	

COMMUNICABLE DISEASES.

November, 1918—October, 1919.

Name of Disease	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sep.	Oct.	Total
Measles—													
Cases	0	0	0	0	0	0	0	0	0	0	0	0	0
Deaths	0	0	0	0	0	0	0	0	0	0	0	0	0
Whooping Cough—													
Cases	1	0	0	0	0	0	0	0	0	0	1	0	2
Deaths	0	0	0	0	0	0	0	0	0	0	0	0	0
Chickenpox—													
Cases	0	6	1	5	6	5	1	1	3	1	1	1	31
Deaths	0	0	0	0	0	0	0	0	0	0	0	0	0
Mumps—													
Cases	0	0	0	0	1	0	0	0	0	0	0	0	1
Deaths	0	0	0	0	0	0	0	0	0	0	0	0	0
Tuberculosis—													
Cases	1	0	0	0	1	0	2	2	0	0	2	2	10
Deaths	1	2	0	0	0	0	3	3	1	0	0	2	9
Scarlet Fever—													
Cases	54	53	60	58	45	34	18	10	5	18	19	35	409
Deaths	0	1	0	0	0	0	0	0	0	0	0	0	1
Diphtheria—													
Cases	1	2	0	2	3	1	5	7	0	0	0	1	22
Deaths	0	0	0	0	1	0	0	0	0	0	0	0	1
Smallpox—													
Cases	0	0	0	0	0	0	0	0	0	0	0	0	0
Deaths	0	0	0	0	0	0	0	0	0	0	0	0	0
Typhoid Fever—													
Cases	0	2	0	0	0	0	0	0	0	1	0	2	5
Deaths	0	0	0	0	0	0	0	0	0	0	0	0	0
Erysipelas—													
Cases	0	0	0	0	0	0	0	0	1	0	0	0	1
Deaths	0	0	0	0	0	0	0	0	0	0	0	0	0
Poliomyelitis—													
Cases	0	0	0	0	0	0	0	0	0	0	1	0	1
Deaths	0	0	0	0	0	0	0	0	0	0	0	0	0
Rubella—													
Cases	0	0	1	0	0	0	0	0	0	0	0	0	1
Deaths	0	0	0	0	0	0	0	0	0	0	0	0	0
Cerebro-spinal Meningitis—													
Cases	0	1	0	0	0	0	0	0	0	0	0	0	1
Deaths	0	0	0	0	0	0	0	0	0	0	0	0	0

REPORT OF SANITARY INSPECTOR.

Dr. E. B. Oliver, Medical Officer of Health, Fort William, Ont.

DEAR SIR,—I beg to submit herewith my report for the year ending October 31st, 1919:

NUISANCES.

During the year the city has been systematically inspected as usual.

So far as the privies are concerned, they have been put into a state of repair as far as possible. But the improper construction of so many, handicaps the work materially.

The nuisances from the keeping of hogs and cows are still acute, especially in the coal docks district. It seems impossible to persuade the people not to keep them on their lots. I am still of the opinion that the course recommended by me, in my last report should be adopted, viz.: the removal of all such animals beyond the C.N.R. tracks and Empire Avenue. This course would, no doubt, inconvenience some people but the good resulting would far outweigh any hardship.

The manure situation has been fairly satisfactory, the receptacles generally being kept in a fair state of repair.

Garbage disposal has been put on a better footing. After long and strenuous efforts, we have been able to get the machinery to compel the owners to provide tins and in default to supply them. So far results are not satisfactory. Progress is far too slow.

There is some improvement in the condition of the coal docks section. Streets have been gravelled. The storm water and sewage still stands on vacant lots and under the houses to the detriment of the health of the people.

Sewer Connections and Plumbing Installations.

During the year, sixty-three notices were served. Twenty-one have been completed Progress in this direction is far from satisfactory.

Dairies and Cowbarns.

The conditions in regard to dairies have been generally good.

The equipment of dairies is slowly but surely improving. The cost of feeding stuffs is still very high. The keeping of cows by the foreign residents still continues, but not to such an extent as formerly, owing, no doubt, to the prosecutions instituted in the spring. Twenty-three summons were issued for selling milk without a license. Nineteen of these were also prosecuted for selling milk that was dirty. There was one prosecution for deficiency in fat. Fines to the amount of three hundred dollars were imposed.

There were nine licensed retailers of milk.

I estimated that there were 200 cows in the coal dock district last spring. There will probably be about fifty per cent. less at the present time.

I collected one hundred and forty-three samples of milk for testing purposes.

Restaurants and Stores.

All the stores dealing with food have been systematically inspected during the year and have been kept in a sanitary manner.

Bread has been regularly weighed and found to be of full weight.

All applications for restaurant licenses have been inspected before license was granted.

Deaths of Infants.

Under One Year of Age.

Number on International List.			Number on International List.		
151	Congenital debility	35	103	Other diseases of the stomach..	1
104	Diarrhoea and enteritis	23	150	Congenital malformations	1
10	Influenza	8	71	Convulsions of infants	1
152	Other diseases of early infancy..	5		Total	82
92	Lobar pneumonia	5			
91	Broncho pneumonia	3			

Deaths.

Number on International List.			Number on International List.		
10	Influenza	111	50	Diabetes Mellitus	3
151	Congenital debility	38	41	Cancer of the peritoneum, intestines, rectum	3
104	Diarrhoea and enteritis (under 2 years)	27	167	Burns	3
92	Lobar pneumonia	15	7	Scarlet fever	3
175	Traumatism by other crushing.	13	40	Cancer of the stomach, liver ..	3
79	Organic diseases of the heart..	11	150	Congenital malformations	3
28	Tuberculosis of the lungs	9	61	Meningitis	2
91	Broncho pneumonia	8	138	Puerperal albuminuria and convulsions	2
189	Ill-defined	6	185	Fractures	2
64	Cerebral hemorrhage	6	81	Diseases of the arteries	2
152	Other diseases of early infancy	5	120	Bright's disease	2
169	Accidental drowning	4	71	Convulsions of infants	2
119	Acute Nephritis	3			

Number on International List.		
172	Traumatism by fall	2
98	Other disease of the respiratory system	2
159	Suicide by firearms	1
146	Diseases of the bones	1
122	Other diseases of the kidneys and annexa	2
137	Puerperal septicaemia	1
154	Senility	1
117	Simple peritonitis	1
115	Other diseases of the liver	1
113	Cirrhosis of the liver	1
110	Other diseases of the intestines.	1
109	Hernia	1
103	Other diseases of the stomach. .	1
99	Diseases of the mouth and annexa	1
87	Diseases of the Larynx	1

Number on International List.		
86	Diseases of the nasal fossae	1
80	Angina pectoris	1
56	Alcoholism (chronic)	1
54	Anaemia	1
46	Other tumors	1
45	Cancer of other unspecified-organs	1
42	Cancer of the female genital organs	1
36	Rickets	1
34	Tuberculosis of other organs. . .	1
9	Diphtheria	1
102	Ulcer of the stomach	1
		315

Non-residents who died here	52
Out of town deaths reported here	16

GENERAL EXPENSES.

Salaries	$10,554 12
Maintenance of Isolation Hospital	5,500 17
Livery and car fare	133 75
Printing and stationery	225 44
Office and laoratory equipment	9 65
Antitoxin and disinfectants	33 33
Automobile	688 70
Conventions	327 00
Ambulance	257 30
Extra nurses	114 00
Utilities	48 00
Ice	44 00
Fumigators	257 30
Incidentals	152 54
Abattoir	887 56
Grant to Provincial Laboratory	500 00
	$19,537 56

CREDITS.

Revenue from abattoir	$1,252 60	
Isolation Hospital accounts	801 00	
Garden produce at Isolation Hospital	235 20	
Police Court fines	350 00	
Milk licenses	8 00	
		2,646 80

Total net cost of department	$16,890 76
Total per capita cost	84.7 cents

Respectfully submitted,

EDW. B. OLIVER,
Medical Officer of Health.

GALT.

To the Chairman and Members of the Local Board of Health, Galt, Ont.

GENTLEMEN,—In accordance with the provisions of the Ontario Public Health Act, I beg herewith to submit my annual report, for the year ending the 31st day of October, 1919.

Re TYPHOID FEVER.

It is again gratifying to me to be able to report that our municipality is practically free from typhoid fever, having had only one case reported during the year and a total absence of any last year, due to the excellent conditions of our water supply and the careful supervision of the milk distributed to our citizens, yet, with this splendid condition I feel that we must not relax in the slightest degree if we intend to maintain the high standard of health we now enjoy.

Re MILK.

I find it necessary again to draw your attention to the difficulty in keeping the milk supply up to the standard of the city's by-law regarding butter-fat. Up to the present time, and from a close observation, I have been unable to determine whether the fault lies with the vendor or the producer, but I hope to be able during the next succeeding year to arrive at a definite conclusion. From a cleanliness point of view, I am pleased to state there is a very great improvement, due to the extra care taken in the handling of the product both by the vendor and producer, and from a health point of view, clean milk is far more important to the consumer than the degrees of butter-fat contained therein. Seventy-five per cent. of all the milk supplied to the citizens is at the present time pasteurized, and in order to eliminate the possible transmission of bovine tubercle to the young, I would, therefore, like to see the other quarter pasteurized as well.

Re PRIVIES.

The keeping of the outside privies clean is quite a source of annoyance, not so much the irregularity, as the method of doing the work. Day after day, I have complaints as to the dirty and careless way in which the work is performed. Too much care, therefore, cannot be taken in attending to this part of the sanitary work, especially that portion of the city situated above and to the west of our water supply.

Re PUBLIC LAVATORIES.

I again desire to call your attention to the necessity of the city erecting and maintaining a public lavatory, as in my opinion no city of the size and the importance of Galt should be without one.

Re DUMPS.

The dumps, especially those at St. Andrew's School, and the end of East Street, where the city has been depositing the garbage, have been kept during the summer months in a very unsightly and unsanitary condition on account of not having sufficient material to cover the garbage deposited there each day, as well as from a lack of proper attention, and would strongly recommend that during the in-coming winter months, the city to collect sufficient ashes to take care of the garbage during the summer. The question of garbage disposal is a matter that requires serious and careful investigation, and during the next year, I believe it would be advisable for the city council and the local Board of Health to get together with a view of formulating a scheme for permanently disposing of the garbage either by converting it into fuel or the purchasing of an incinerator.

Re MAN POWER.

Previously the work devolving on the Board of Health has been the supervision and care of contagious diseases, but Mr. Chairman, do you not think we should extend our labors into a somewhat wider field and direct our efforts toward the man power of our municipality, and in so doing try to conserve the lives of our citizens who are the source of power, whether for national defence or economic progress. With that object in view, I consider it advisable for the Board to look into the vital statistics of the city, especially so when we consider this fact, that when Canada and the United States of America entered the war and began to examine the young men of these two countries it was found that less than seventy-five per cent. of the flower of these countries were fit for military services.

Re ISOLATION HOSPITAL.

I am pleased to be able to report that before the end of the year 1919, the city of Galt will be the happy possessor of an up-to-date isolation hospital, and while not very commodious, yet of sufficient size to fill all the requirements of the city for some time to come.

Re COMMUNICABLE DISEASES.

During the year we have not had any severe epidemic of any of the communicable diseases, excepting Spanish Influenza, which latter disease was of the most virulent and deadly type that ever struck this country, especially among those under the age of thirty-five years. If history should repeat itself we may expect a return of that disease, but we trust of a milder character. However, whether mild or severe, it behooves this board to be ready to combat the disease, and relieve the suffering as far as lies within our power.

Re VENEREAL DISEASES.

I regret to be compelled to report that venereal diseases have been on the increase judging from the number of cases reported and those coming under my direct observation. This I consider a very regrettable state of affairs in such a clean, healthy and progressive city as Galt.

Re TUBERCULOSIS.

I again find it necessary to call the attention of the physicians and the public generally to the fact that the regulation laid down by the Provincial Board of Health says, that whenever a legally qualified practitioner knows that any person whom he is called upon to visit is affected with tuberculosis, he shall, within twelve hours, give notice thereof on the prescribed form to the M.O.H. of the municipality in which such diseased person resides. This regulation thus far has been a dead letter in so far as Galt is concerned because I have only had three cases reported during the year.

VITAL STATISTICS.

Population	12,434
Deaths	208
Death rate per thousand	16.72
Births	266
Birth rate per thousand	21.39
Infant mortality	49.
Infant mortality per thousand	3.94

CONTAGIOUS DISEASES.

	Reported.	Deaths.
Typhoid fever	1	0
Smallpox	1	0
Tuberculosis	3	1
Polio Myelitis	0	0
Scarlet fever	30	0
Diphtheria	6	1
Measles	1	0
Mumps	0	0
Whooping cough	0	0
Erysipelas	0	0
Scabies	30	0
Ringworm	10	0
Impetego Contagiosa	10	0

By comparing this report on vital statistics with that of last year's, it will be found that the population of Galt has decreased by 124 persons, due to the large exodus of the foreign element and the removal of so many of our citizens to the old country whether for temporary or permanent residence I am unable to say.

It will also be seen by the report that there has been very little change in the birth and death rates, as compared with last year's excepting the death rate in children under two years of age being much greater this year than last, but I sincerely hope that when our baby clinic is thoroughly established (which no doubt will be in a short time) the death rate will be greatly reduced.

Respectfully submitted.

J. H. Radford,

Medical Officer of Health.

Galt, December 8th, 1919.

To the Members of the Galt Board of Health.

Gentlemen,—The annual review of the work accomplished by the local Board of Health is placed before you in the following report:

The interesting report of the M.O.H. is complete in every respect.

The Board, I am sure, extends its appreciation for the efficient, courteous and courageous manner in which he has interpreted and endeavoured to carry out the responsible duties attached to his office.

The education along the lines of the care of the human body has been of slow growth, the prejudice and superstition of the ages has to be overcome and any one who assays to lead in the direction of better and cleaner living must patiently endure the criticisms and antagonisms that will arise.

The health of the community should be the citizens' first care, and I feel assured the citizens will support you in any effort that will prevent, lessen or ameliorate sickness, which is an abnormal condition.

I wish to draw your attention to the vital statistics for the passing year, while the death rate is above normal the infant mortality has nearly doubled. This is a serious matter and should not pass unnoticed. We have not consulted the files for the causes of this increase, but we feel the time is opportune to suggest to our medical practitioners that a more searching enquiry be made in regard to the death of infants that the public may be advised and be enabled to safeguard infant life. We believe the public are interested in vital statistics and are willing to carry the increasing taxes provided they can be shown results.

The Board of Health has been conducted in a very economical manner, twenty cents per capita being the amount credited to the Board of Health for the current year. In comparison with other spending bodies this amount is infinitesimal.

The completion of the isolation hospital at an early date will place you in a position to give proper care to those who become its inmates.

The progress along the lines of sewer extensions is very satisfactory, the removal of garbage and night soil is in a much better sanitary condition.

We would suggest to our fellow citizens that a marked improvement could be made in the garbage container, a receptacle with a lid would remove the unsightliness which exists.

The absence of typhoid fever is an evidence of the purity of our water supply.

The care of our milk is being maintained, the producers and vendors co-operating in a manner which ensures a sanitary commodity which contributes to the health of the city.

We believe the city of Galt has reached that stage of its growth that a public lavatory is a necessity which should not be neglected and we would recommend a resolution being passed urging the city council to take action.

In submitting this report I wish to thank you, gentlemen, for the courtesy and co-operation accorded me during the year.

Respectfully yours,

John H. Laird,

Chairman, Galt Board of Health.

DEATHS IN GALT FROM NOVEMBER 1ST, 1918, TO NOVEMBER 1ST, 1919.

Diphtheria	1	Fractured skull	1
Pneumonia	29	Obstruction of bowels	1
Spanish influenza	5	Peritonitis	3
Meningitis	4	Bronchitis	2
Drowning	1	Heart lesion	1
Broncho Pneumonia	3	Tabes messenterices	1
Old age	11	Appendicitis	2
Paralysis	3	Cholera infantum	1
Still born	18	Arterio sclerosis	1
Heart failure	30	Haemophelia	1
Inanition	3	Sarcoma	2
Premature birth	7	Diarrhoea	2
Shock following confinement	1	Endocarditis	2
Heart disease	13	Gastric ulcer	1
Hepatitis	1	Pericolitis	1
Cancer	4	Splenic anaemia	1
Convulsions	2	Jaundice	1
Empyemia	1	Deplintis	1
Gangrene	1	Cardiac dilitation	2
Myocarditis	5	Tuberculosis	2
Pernicious anaemia	3	Coma	1
Intestinal indigestion	1	Chill and grippe	1
Apoplexia	5	Cerebral hemorrhage	2
Cystitis	1	Infantile inertia	1
Septicaemia	1	Epilepsy	1
Acute mania	2	Eclampsia	1
Dropsy	1	Interssusception	1
Uraemia	2	Syncope	1
Stroke	3		
Carcinoma	7		208
Smothered	1		

JOSEPH MCCARTNEY,
Division Registrar.

GUELPH.

GUELPH, December 24th, 1919.

The Chairman and Members of the Board of Health, Guelph, Ontario.

GENTLEMEN,—In presenting my report for the year ending 1919, it records the unusual situation of more than one epidemic—the climax of the great influenza epidemic, and to a lesser extent the diphtheria and smallpox, a fair amount of chickenpox was prevalent at the same time as the smallpox.

SMALLPOX.

We have only had sporadic cases of smallpox in the past. In the year just closed, it was our duty to handle more than all the recorded cases in the history of Guelph, upwards of thirty cases, some of which were well developed as the accompanying photograph shows. Many cases of chickenpox were present in Guelph at the same time, which made diagnosis doubtful for days at a time—fortunately the epidemic of thirty cases or so might be termed an epidemic—occurred in the summer time so that we did not have to depend altogether on the small pox hospital, this hospital can only accommodate four patients at the most and then the sexes must be equally divided in numbers. We were able to provide for the extra patients by the purchase of a handsome marque tent which was erected over a board flooring similar to the one already in possession of the Board. We were fortunate in procuring a number of "Bell" military tents from the Government authorities and so were able to deal with all cases as they arose. It was our policy to isolate every case—if there was a doubt as to the diagnosis we isolated the case completely until the doubt was removed—we vaccinated and quarantined the contacts. We ordered compulsory vaccination in the schools, and by these means the disease was wiped out in a few weeks. As children are thought to be more susceptible to the disease than adults, and as school children congregate more than adults in their classes and at play, we might naturally expect that the disease would spread and tend to get beyond control if smallpox developed in the children at school. This actually occurred—several pupils contracted smallpox, but the disease did not spread amongst them. As stated above, all the school children were vaccinated, and I believe that the protection afforded by the vaccination plus the prompt isolation of a case made it possible to check an epidemic and to avert great inconvenience to the municipality.

It is possible that we have not had our last experience with this disease, there are more cases in Ontario today than ever before, it may be said to be endemic and we may expect isolated cases to develop almost anywhere and almost anytime, especially so is the case when we are informed that there are upwards of a thousand cases in Toronto District alone. The medical profession must always be on the lookout for smallpox, any rash of that nature in an adult, especially an unvaccinated adult, must be isolated with all the precautions that a smallpox patient would demand until it would be perfectly apparent that the disease was something less virulent. In short, the earnest co-operation of the public and medical profession is our safeguard in our fight against this disease. We have had this co-operation in the year just closed.

DIPHTHERIA.

Eighteen cases of this disease developed suddenly in a few days last summer. It was noticed that the majority of them appeared in the same neighbourhood. Investigation showed that sixteen of the eighteen had a common milk supply and that the other two had been in contact with, or visited at one of the houses above mentioned.

This milk supply was immediately investigated, the vendor made two deliveries of milk, night and morning, he had two sources of supply for his milk deliveries, his own herd provided one supply, he bought the supply for the other delivery, e.g., the afternoon delivery. His house was visited late one night and the members of his family and himself were examined; none were found to be ill, but two were found to be "diphtheria carriers," that is, although they had not symptoms of diphtheria themselves the germs of diphtheria were found in their noses or throats and it was possible for them to convey diphtheria to others. The home of the farmer, who sold milk to the vendor (the afternoon delivery), was next visited and several cases of diphtheria were found in his household—two actually had membranes in their throats—temperatures and other apparent signs of the disease. These people did not consider themselves ill enough to go to bed and daily performed their usual duties of milking the cows, washing the milk cans and contaminating the milk with germs of diphtheria, which they sold to the milkman, and sixteen of the first eighteen cases of diphtheria developed on the route, which was supplied by the milk from their farm.

Laboratory reports confirmed the clinical diagnosis of diphtheria in these people. Needless to say, this supply of milk was at once suppressed, the milkman forbidden to deliver another pint of milk until precautions were taken to insure that there was no further danger in his doing so. By these precautions, the epidemic was immediately wiped out, but not before a death resulted. I consider the investigation of these cases one of the most interesting experiences that I have had while acting as your health officer.

INFLUENZA.

When we look back now at the bulletins that were posted during the war, our attention is arrested immediately by one sent out from Barcelona, in June, 1918. "A German submarine put into this port and all the crew are suffering from a strange disease." Later, "Throughout the city and in their neighbourhood, a strange disease is raging."

Despatches from the various parts of Europe that subsequently arrived made it easy for us to trace the spread of the disease in a fan-shap manner over the surface of that continent, except in those countries that were at war with us.

Then it was announced that the strange disease was "Influenza," and we felt relieved that it was nothing more serious. We thought of the epidemic of 1890—and remembered the high mortality among the aged, but little thought what was ahead of us. The Government, for reasons of its own, did not make a statement as to the seriousness of disease among the troops, but we were struck with the large number of deaths from "pneumonia" that were reported. Civilians wrote from England about the terrible severity of the epidemic, and a few weeks later a despatch from Quebec mentioned that there were eight cases on board a ship in that port, then at short intervals, the despatches came from Montreal and other centres on the line of travel westward, until we found ourselves in contact with influenza, but never did the bulletins announce its presence quicker than modern conveyances could carry passengers. The same story probably applies to all Atlantic ports that received passengers from Europe. We were informed that it would disappear when the cold weather came, but it thrived in spite of the zero weather of our north, as we have since learned that it thrived in Siberia. Some said that the sunlight would destroy it, but the lovely sun of the Riviera was powerless, just as we have been informed that six million lives were lost in spite of the hot sun of India. We have learned that a population acquired immunity by surviving the epidemic as best it could and paying the large price in loss of life. On November 10th, 1918, the first case in this neighbourhood developed between Guelph and Erin—it was a severe one and the next day the public were warned through the press of the impending epidemic. It was predicted that Guelph would be visited in about two weeks, the people were warned to go to bed, with the onset of the first symptom, in a warm room and given other necessary instructions. The prediction proved correct almost to the day. The Press published daily the toll of death in the neighbouring towns, our citizens were very careful and were guided by the published warning. Then the idea got abroad that we had not "real influenza," they were soon disillusioned, however, the disease increased in virulency and many valuable lives were lost before the epidemic burned itself out for lack of susceptible material to attack. Of those who followed the "rules" nearly all survived. There may have been exceptions, but I cannot recall one. The foreign population faired the worst, they would not stop work till their symptoms compelled them to and as a result the Italians and Austrians lost ten per cent. of their local population. Next, fathers of young families; fathers who felt they had to work on, and mothers who felt they had to work or nurse "for their children's sake," and one other class, that class which refuses to learn anything from the experience of others, formed nearly all of our local mortality.

Epidemologists, scientific men, Government specialists and leading medical societies are of the opinion that no vaccine, serum or any special preventative drug had power to prevent the spread of this disease. Had not the foreign population supplied so many deaths, I believe Guelph's record would compare extremely favorably with any other similar place. In comparison with other places we have much to be thankful for.

AMBULANCES.

At the first meeting of this Board we took up the matter of making the change—the old horse-drawn ambulance had outlived its usefulness—there was not enough money at our disposal so we adopted the idea of asking for subscriptions from generous citizens. The manufacturers and professions gave freely along with many others, but we were still far short of our objective and probably would not have been able to have carried it to a successful issue, when the ladies of the Red Cross Society took up the matter and assumed the greater part of the expenditure, their contribution being in the neighbourhood of $2,000, and gave the city an ambulance to be proud of; one which would cost to replace in the neighbourhood of $10,000. This ambulance is available to all for a nominal fee and free to those who are unable to pay. The infectious cab, long a disgrace, it is our intention to replace by a modern rubber tired cab, which can be changed to runners in winter. The old ambulance will be used as an auxiliary in winter.

WATER SUPPLY.

You will remember that in the fall of 1914 several thousand cases of diarrhoea suddenly developed in Guelph. It was our opinion and the Provincial Board of Health subsequently concurred with that opinion—that these cases were traceable to the water supply. Boiling of the water was for a time resorted to and later the water was chlorinated, this chlorination has ever since been kept up.

Our agitation resulted in great improvements in the pipe line, old and new sections, especially at the collecting basins and on the new line. The contentions of the Board of Health at that time and since, are today confirmed. Nearly all the objections to our exposure of the condition of the pipe line came from those, who were responsible for its construction and were consequently the most difficult to convince that the pipe line could be at fault. We must give them credit, however, for their splendid work years ago in changing the city's water supply from ordinary river to spring water, because previous to the inception of the present system an average of ten people died of typhoid fever each year in Guelph. We have not lost that many from typhoid in the last ten years and have barely had that many cases of disease.

G. B. Ryan, R. L. Torrance, Ald. Newstead and Dr. W. J. Robinson (now in London), were the men responsible for the change and the wiping out of typhoid in Guelph.

BOARD OF HEALTH.

I believe that it will sometime be advisable to appoint a full-time medical officer of health, and an additional sanitary inspector. This will probably involve an additional expenditure of about $5,000 a year. The medical officer would not engage in private practice, but have his office in the city hall and devote all his time to public health duties. He would probably ask for a nurse or two employed by the Board of Health. These nurses would take over the duties of the school nurse and in the summer months be employed in child welfare work, and aid in the attempt to combat infant mortality from summer diarrhoea and other diseases of infants peculiar to the summer months and most prevalent in children of the poor. Needless to say, I would not be an applicant for such a position, but am of the opinion that such a move would be a step in the right direction in spite of the expense it would entail.

At present the Board of Education, who now employ a school nurse, prevent her from consulting with your executive officer on matters pertaining to public health and efficiency, so preventing our early taking of precautions against the spread of disease, but, this action of the Board of Education does not in any way alter our power as defined by the Public Health Act, but simply delays any early action on our part, which might be necessary to take in the interests of the public. The Board of Education took this reactionary stand at the instigation of one of its members, who placed his misguided feelings ahead of the interest of the public. This I believe to be true.

Yours sincerely,

H. O. Howitt,
Medical Health Officer.

HAMILTON.

Charles G. Booker, Esq., Mayor.

Chairman of the Board:

Alderman Calvin Davis.

Members:

Controller T. W. Jutten, E. Madden, James Roberts, M.O.H.

James Roberts, M.D., Medical Officer of Health; W. J. Deadman, M.B., Bacteriologist; Frank J. Elliott, Laboratory Technician; H. A. Thompson, D.D.S., Director Dental Clinic; W. G. Manning, D.D.S., Director Dental Clinic; Mrs. Mina Darnbrough, Dental Assistant; Chas. S. Shain, D.V.S., Food Inspector; George A. Gompf, Assistant Food Inspector; Mrs. C. H. Jarvis, Visiting Nurse (Tuberculosis); Miss F. Torrey, Public Health Nurse.

Sanitary Inspectors:

L. A. MacDonald, George Potter, Charles Robertson, Philip Smith.

Clerks:

A. C. Shain, Miss M. Quinn.

Ambulance Driver:

Hewitt A. Bowman.

Report of the Health Officer.

To the Chairman and Members, Local Board of Health.

Gentlemen,—Below please find report of Medical Officer of Health for statistical year beginning November 1st, 1918, and ending October 31st, 1919.

VITAL STATISTICS.

——	1918		1919	
	Births	Deaths	Births	Deaths
November	193	103	200	322
December	246	127	220	218
January	280	127	190	109
February	132	130	208	113
March	267	135	247	171
April	248	134	241	157
May	245	129	238	117
June	231	95	195	93
July	261	115	195	91
August	222	97	151	95
September	288	116	239	101
October	270	297	197	114
	2,883	1,605	2,521	1,701

DEATHS.

November 1st, 1917 to October 31st, 1918	1,605
November 1st, 1918 to October 31st, 1919	1,701

DEATHS.

I. General Diseases.

Scarlet fever	5
Typhoid fever	2
Whooping Cough	1
Diphtheria	14
Erysipelas	3
Epidemic influenza	332
	357

Tuberculosis—

Lungs	46
Meninges	9
Intestines	1
Kidney	4
	60

Carcinoma—

Stomach and liver	33
Intestines	8
Breast	9
Uterus	10
Throat	4
Bladder	6
Rectum	5
Lip	6
Not specified	13
Neck	3
Ovary	2
	99

Sarcoma—	
Brain	1
Abdominal abscess	2
Rheumatism	3
Septicaemia	13
Exophthalmic goitre	2
Anaemia	5
Rheumatoid arthritis	1
Anaemia, pernicious	11
Diabetes	13
Syphilis	1
Purpura Haemorrhagica	2
Leukaemia	2
Arthritis deformans	1
	57

II. Diseases of the Nervous System.

Meningitis	13
Cerebral haemorrhage	20
Cerebral tumor	1
Locomotor ataxia	2
Paralysis—	
General	3
Agitans	3
Epilepsy	3
Apoplexy	36
Hemiplegia	4
Encephalitis	1
Cerebro spinal meningitis	1
	87

III. Diseases of the Circulatory System.

Aneurism	3
Endocarditis	17
Chronic valvular disease	22
Angina pectoris	5
Arterio sclerosis	40
Myocarditis	30
Heart Failure	20
Mitral regurgitation	11
Aortic regurgitation	2
Acute dilatation	9
Mitral insufficiency	5
Cardiac insufficiency	5
Pericarditis	1
Embolism	3
Thrombosis	1
Ovarian cyst	1
	175

IV. Diseases of the Respiratory System.

Bronchitis	14
Broncho-pneumonia	62
Lobar pneumonia	12
Hypostatic pneumonia	2
Pleuro-pneumonia	3
Pneumonia	133
Asthma	1
Empyema	3
Oedema of lungs	2
Gangrene of lungs	1
Haemoptysis	1
Toxaemia	3
	237

V. Diseases of the Digestive System.

Appendicitis	8
Jaundice	3
Peritonitis	6
Strangulated hernia	5
Cirrhosis of the liver	4
Gastro enteritis	1
Intestinal obstruction	9
Gastritis	2
Volvulus	1
Dysentry	1
Convulsions (gastritis)	2
Gall stones	3
Pelvic abscess	1
Convulsions (not specfied)	3
Enteritis	2
Acute indigestion	3
Gastric ulcer	2
	56

VI. Diseases of the Genito-Urinary System.

Nephritis	43
Bright's disease	6
Uraemia	3
Cystitis	5
Prostatic hypertrophy	1
Disease of the prostate	1
Dropsy	1
	60

VII. Disease of the Puerperal State.

Abortion	2
Eclampsia	1
Septicaemia (childbirth)	10
Childbirth	3
Ectopic gestation	2
Caesarean section	1
	19

VIII. Diseases of the Skin.

Herpes zoster	1
Gangrene (not specified)	2
Gangrene scrobie	1
	4

IX. Diseases of the Bone.

Mastoiditis	1
Osteomyelitis	1
	2

X. Malformations.

Congenital heart	2
Spina bifida	2
Hydrocephalus	3
	7

XI. Diseases of Early Infancy.

Intestinal intoxication	7
Malnutrition	15
Marasmus	16
Stillbirth	164
Premature	65
Inanition	7
Patent foramen ovale	7
Debility (infantile)	6
Cholera infantum	13
Icterus Neonatorum	2
Chronic indigestion	2
Rickets	2
Cerebral hernia	1
Acute indigestion	7
Convulsions (not specified)	16
Intestinal obstruction	2
Haemophilia	1
Gastro enteritis	13
Ileocolitis	6
Empyema	1
Toxemia	2
	355

XII. Diseases of Old Age.

Old age	23
Debility, general	10
Senile decay	21
	54

COMPARATIVE TABLE.

Showing number of deaths during 1919, within the following age periods:

Under 1 year	416
From 1 to 5 years	76
From 5 to 10 years	66
From 10 to 20 years	73
From 20 to 30 years	200
From 30 to 40 years	198
From 40 to 50 years	128
From 50 to 60 years	145
From 60 to 70 years	153
From 70 to 80 years	151
From 80 to 90 years	79
From 90 to 100 years	16
Ages not given	0
	1,701

COMPARATIVE TABLE.

Showing causes of death in early infancy, exclusive of prematurity.

Under One Year.

Malnutrition	13
Inanition	8
Marasmus	13
Cholera Infantum	14
Intestinal obstruction	2
Gastro enteritis	14

Enteritis	2
Ileo colitis	6
Convulsions (gastritis)	11
Nephritis	2
Congenital heart	2
Acute indigestion	8
Hydrocephalus	2
Bright's disease	1
Tuberculosis (lungs)	1
Abscess of neck	1
Myocarditis	1
Icterus neonatorum	1
Spina bifida	1
Syphilis	1
Patent foramen ovale	7
Meningitis	4
Hemiplegia	1
Pneumonia	16
Broncho-pneumonia	28
Lobar pneumonia	7
Diphtheria	3
Tubercular meningitis	2
Suffocation	1
Toxemia	1
Eypyema	1
Erysipelas	1
Whooping cough	1
Haemorrhage	1
Bronchitis	6
Natural causes	1
Purpera haemorrhage	1
Epidemic influenza	24
Infantile debility	5
Cause not known	2
	217

One to Two Years.

Malnutrition	2
Broncho-pneumonia	14
Pneumonia	6
Marasmus	2
Convulsions	3
Cholera infantum	2
Cerebro spinal meningitis	1
Tubercular meningitis	2
Gastro enteritis	2
Icterus neonatorum	1
Hydrocephalus	1
Epidemic influenza	9
Septicaemia	1
Endocarditis	1
Toxemia	1
Rickets	2
Eclampsia	1
	51

XIII. External Causes.

Accidental injuries	1
“ “ fall	1
“ “ to head	2
“ “ suffocation	2
“ “ internal	4
“ “ shooting	3
“ “ elevator	4
Murdered	1
	18

Suicide:	
Poisoning	1
Cutting	1
Shooting	1
	3

Fracture of the leg	1
" " skull	9
" " pelvis	1
" " ribs	2
	13

Killed by railway	2
" automobile	3
" street car	2
Killed (not stated)	6
Poisoning, alcoholic	2
Burns	7
Drowning	7
Post operation	2
Electrocuted	2
	33

XIV. Ill Defined Diseases.

Causes not known	4
Natural causes	1
	5

Showing Deaths from Communicable Diseases from November 1st, 1918, to October 31st, 1919.

Diseases	1918		1919										Total
	November	December	January	February	March	April	May	June	July	August	September	October	
Scarlet Fever	....	....	....	....	1	1	1	1	....	1	....	....	5
Typhoid Fever*	1	....	....	1	....	....	....	....	....	....	....	....	2
Whooping Cough	....	....	....	....	....	....	....	....	....	1	....	....	1
Diphtheria	1	....	1	1	1	3	1	2	1	1	....	2	14
Erysipelas	....	....	....	....	....	....	....	1	....	1	....	1	3
Influenza	165	84	11	8	28	25	8	1	....	....	2	....	332
Consumption	8	5	6	2	3	5	5	1	2	3	2	4	46
Tuberculosis (other forms)	2	1	2	3	1	1	1	2	1	....	....	....	14
Cerebro Spinal Meningitis	....	....	....	....	1	....	....	....	....	....	....	....	1
Totals	177	90	20	15	35	35	16	8	4	7	4	7	418

* Excludes Typhoid cases infected outside city.

SUMMARY OF COMMUNICABLE DISEASES REPORTED FROM NOVEMBER 1ST, 1918 TO OCTOBER 31ST, 1919.

Diseases	1918		1919										Total
	November	December	January	February	March	April	May	June	July	August	September	October	
Diphtheria	6	9	12	14	19	14	7	14	10	15	22	43	185
Scarlet Fever	1	6	26	58	46	35	22	31	26	11	11	19	292
Typhoid Fever*	......	......	....	....	....	....	....	....	2	2	2	2	8
Tuberculosis	7	7	22	12	9	12	17	10	13	27	14	16	166
Chickenpox	13	8	2	8	34	36	73	42	9	3	13	40	281
Measles	7	......	1	2	4	2	14	9	....	....	7	4	50
Mumps	1	1	1	....	2	4	2	5	2	7	8	8	41
Erysipelas	1	......	1	....	....	....	....	....	....	....	....	....	2
Smallpox	1	1	....	1	....	....	....	2	....	5	....	....	10
Whooping Cough	2	......	1	3	1	2	....	....	7	2	8	3	29
Influenza	2,816	2,554	202	155	304	171	28	4	2	2	18	12	6,268
Poliomyelitis	......	......	....	....	....	....	....	....	2	....	1	....	3
Total	2,855	2,586	268	253	419	276	163	117	73	74	104	147	7,335

* Excludes Typhoid cases infected outside city.

VENEREAL DISEASES.

Diseases	1918		1919										Total
	November	December	January	February	March	April	May	June	July	August	September	October	
Gonorrhoea	3	8	11	4	12	5	8	20	37	15	8	13	144
Chancroid	......	......	....	....	1	....	1	1	....	....	....	1	4
Syphilis	3	8	15	5	11	2	8	31	22	27	21	32	185
Total	6	16	26	9	24	7	17	52	59	42	29	46	333

Comparative Table.

Showing cases of Typhoid Fever reported for the past twenty-five years.

—	November.	December.	Jannary.	February.	March.	April.	May.	June.	July.	August.	September.	October.	Total.	Deaths.
1894–1895	3	3	5	5	3	....	2	6	4	15	17	31	94	7
1895–1896	13	8	25	7	8	2	4	3	14	13	14	8	119	15
1896–1897	8	3	2	2	1	2	....	2	1	5	11	6	41	5
1897–1898	2	11	2	2	4	1	....	1	1	4	6	3	37	6
1898–1899	3	1	1	....	1	3	1	....	5	26	21	12	74	13
1899–1900	5	2	....	1	2	1	2	1	1	10	28	8	61	12
1900–1901	12	5	1	....	....	....	....	2	2	13	12	11	58	10
1901–1902	3	2	1	1	2	....	....	4	2	17	29	3	65	7
1902–1903	5	1	2	3	1	1	1	....	....	13	9	17	53	6
1903–1904	16	5	3	....	....	3	1	20	19	12	17	7	103	7
1904–1905	6	11	3	....	....	1	3	1	2	7	8	6	48	8
1905–1906	7	4	1	3	....	1	....	2	2	6	52	47	125	20
1906–1907	12	1	1	2	....	1	....	4	1	8	15	8	53	11
1907–1908	2	4	....	1	....	....	....	2	6	11	13	4	43	10
1908–1909	7	....	....	....	3	....	....	3	4	6	27	8	58	6
1909–1910	8	1	1	2	1	....	....	....	2	17	27	21	80	12
*1910–1911	2	1	....	3	3	....	....	6	4	2	11	10	42	9
*1911–1912	3	1	3	1	1	....	2	....	1	4	5	6	27	8
*1912–1913	2	1	1	....	....	1	....	2	3	29	21	6	66	10
*1913–1914	4	....	....	1	1	....	1	....	....	9	5	11	32	9
*1914–1915	1	2	1	1	1	....	....	....	1	....	2	1	10	7
*1915–1916	3	1	1	1	....	....	....	....	....	1	7	2	16	3
*1916–1917	....	1	....	4	....	....	....	....	....	3	1	3	12	4
*1917–1918	....	....	1	1	....	2	....	3	1	5	4	....	17	3
*1918–1919	....	....	....	....	....	....	....	....	2	2	2	2	8	2

* Cases infected outside city not reported.

Food and Dairy Divisions.

Total number of inspections	6,907
Inspections of Central Market	174
" restaurants and lunch rooms	610
" bakeries	214
" butcher shops	253
" grocery stores	37
" confectionery stores	47
" fruit and vegetable stores	214
" butter and eggs stores	26
" fish stores	16
" sausage factories	13
" ice cream manufacturers prem.	25
" slaughter houses	9
" poultry houses	9
" candy factories	77
" bake wagons	25
" fruit and vegetable peddlers' wagons	12
" ice cream vendors' premises	107
" hotel kitchens	3
" ice cream tents	62
" city dairies	318
" stores selling milk	58
" dairy farms	118
" cheese factories	14
" milk wagons	181
" Chinese stores	44

Inspections of hide houses	18
“ bottling works	18
“ cold storage plant	11
“ ice cream cone factory	1
“ for milk license	66
“ for restaurant license	41
“ for butcher license	37
Number of sediment tests of milk	152
“ bacterial counts made of milk	44
“ milk samples collected and tested	1,708
“ cream samples collected and tested	19
“ water samples collected and tested	14
“ milk (stable) tests made	3
“ ice cream peddlers' license refused	4
“ milk licenses refused	6
“ complaints *re* food investigated	6
“ summons issued	12
“ attendances at court	18
“ miscellaneous inspections	1,974
“ times weighing potatoes	5
“ “ poultry	32
“ “ butter	25
“ “ sausage	2
“ “ bread	2

Notices Were Served as Follows:

Notices to clean restaurants	271
“ “ bakeries	70
“ “ butcher shops	58
“ “ milk dairies	89
“ “ milk wagons	7
“ “ candy kitchens	25
“ “ bottling works premises	4
“ “ Chinese stores	4
“ “ cheese factories	2
“ “ ice boxes	10
“ “ general stores	65
“ “ ice cream premises	11
“ “ laundries	210
“ “ hide houses	3
“ “ cows	5
“ “ barnyards	4
“ remove hogs from dairy stable	9
“ “ cows from premises	2
“ abate offensive odors nuisances	3
“ *re* low testing milk	114
“ to quit sale of milk	15
“ “ build milk house	30
“ “ white wash dairy stables	68
“ “ provide fly screens for milk house	3
“ “ provide fly screens for restaurants	3
“ “ abolish open ice cream tents	2
“ “ cover and protect fruit	83
“ “ cover swill wagons	2
“ *re* milk cans left on street	2

Seizures.

Pounds of lamb	50
“ fish	700
“ pork	222
“ butter	28
“ beef	1,255
“ veal	45
“ chicken	12
“ potatoes	47,880
Baskets of fruit	10
Total	50,202

PROSECUTIONS, 1918-1919.

	Number.
For conducting confectionery business contrary to health regulations	1
“ conducting restaurant business contrary to health regulations	2
“ misrepresenting weight of fowl, fine and confiscation	1
“ offering for sale light weight butter, fine	1
“ offering for sale light weight butter, confiscation	1
“ offering for sale cream below standard	1
“ maintaining dirty and unsanitary restaurants	3
“ conducting unsanitary laundries	9
“ maintaining unsanitary houses, sentence reserved	1
“ maintaining a nuisance and not providing sewer connections	2
“ failing to carry out instructions from M.O.H. (*re* V. D.), fine	1
“ failing to report for treatment (V. D. case), sentence suspended	1

REPORT OF SANITARY INSPECTORS.

To the Chairman and the Members of the Local Board of Health.

GENTLEMEN,—Below please find synopsis of work done by the Sanitary Inspectors from November 1st, 1918, to October 31st, 1919:

Total inspections		22,025
Number re-inspections	2,472	
“ notices served	4,832	
“ inspections *re* accumulations rubbish and refuse	1,466	
“ “ accumulations manure	294	
“ “ unsanitary and overcrowded premises	1,459	
“ “ unsanitary and defective water closets	381	
“ “ defective sewer connections	212	
“ “ defective eavetroughs	42	
“ “ defective sink waste pipe	37	
“ “ defective plumbing	74	
“ “ defective roofing on houses	28	
“ “ defective mains	4	
“ “ nuisance caused by fowl on premises	588	
“ “ nuisance caused by animals on premises	75	
“ “ offensive garbage utensils	217	
“ “ offensive dumps	20	
“ “ offensive odors	16	
“ “ unsanitary basements and cellars	215	
“ “ disposal waste water	20	
“ “ water on lots	187	
“ “ census for sewer connections	56	
“ “ house to house	7,256	
“ “ vacant houses	69	
“ “ supplying tennants with water	33	
“ “ providing sanitary convenience for workmen	167	
“ “ providing proper vent for manure bins	2	
“ “ improper ventilation	72	
“ “ manure bins provided	17	
“ “ sewer, cement floor, manure bins in stables	6	
“ “ ice cutting	2	
“ “ of premises found O.K.	3,078	
“ “ laundries	452	
“ “ alleys	558	
“ “ junk yards	14	
“ “ stables	182	
“ “ stables located	17	
“ “ manure bins not covered	99	
“ “ water closets installed	74	
“ “ cesspools	3	
“ “ privy vaults	182	
“ “ hotel and public lavatories	48	
“ “ basements vacated	5	
“ “ privy vaults abolished	8	
“ “ dry earth closets located	4	

Number inspections of privy vaults to be abolished, water closets to be installed	90
“ “ sewers installed	10
“ “ street cars	10
“ wrong numbers given, occupants not in	167
“ complaints unfounded	63
“ miscellaneous calls	727
“ miscellaneous food inspections	199

Notices were served as follows:

Notices to clean and repair premises	1,250
“ “ cellars and basements	103
“ “ alleys	458
“ “ laundries	66
“ “ stables	69
“ “ chicken coops	50
“ “ privy vaults and D. E. closets	76
“ “ and repair water closets	195
“ repair defective sewer connections	78
“ “ defective roofing on houses	10
“ “ defective plumbing	45
“ “ defective mains	4
“ remove rubbish and refuse	910
“ “ accumulations manure	187
“ “ fowl from premises	3
“ “ fowl required distance	155
“ “ animals from premises	32
“ provide proper water supply for tennants	15
“ “ proper ventilation	18
“ “ sanitary convenience for workmen	7
“ “ proper manure bins	36
“ “ sewer, cement floor, manure bin in stable	72
“ abolish privy vaults and D.E. closets and install water closets	135
“ abate nuisance caused by water on lots	66
“ lock up fowl	164
“ cover manure bins	62
“ vacate premises	6
“ vacate basements	3
“ vacate stables	2
“ abolish wells	2
“ *re* unsanitary and overcrowded premises	96
“ offensive garbage utensils	185
“ offensive junk yards	2
“ offensive dumps	11
“ offensive odors	9
“ disposal waste water	13
“ water in cellar	16
Number miscellaneous notices served	119

Respectfully submitted,

Summary of Work Done by the Inspectors in Quarantine and Disinfection.

Houses placarded for scarlet fever	108
“ “ diphtheria	49
“ “ measles	34
“ “ meningitis	2
Houses disinfected for scarlet fever—patients sent to hosptal	183
“ “ diphtheria—patients sent to hospital	137
“ “ measles—patients sent to hospital	2
“ “ smallpox—patients sent to hospital	4
“ “ erysipelas—patients sent to hospital	2
“ “ typhoid—patients sent to hospital	4
“ “ diphtheria, cards removed	34
“ “ scarlet fever, cards removed	75
“ “ smallpox, cards removed	3

Houses disinfected for tuberculosis	24
" " measles	2
" " influenza	9
Clothing disinfected, etc.	4
Miscellaneous disinfections	2
Measles cards removed	30
Visits *re* quarantine	1,509

REPORT OF THE LABORATORY.

To the Chairman and Members of the Board of Health.

GENTLEMEN,—In presenting the report of the City Laboratories for the year ending October 31st, 1919, I may state that I have been in charge only since February 11th, 1919, when I returned from overseas. Consequently on account of the necessary period of readjustment the service has been perhaps not up to the standard which will be aimed at in the future.

I found on my return that there had been a great increase in the amount of public health laboratory work required. This increase is due to several factors. The city has grown considerably and there has been an increased disposition to make use of laboratory facilities. Venereal diseases have come under Public Health Act and this entails a large amount of new work, namely: The performance of Wassermann reactions and the examination of films. The influenza epidemic brought in its train an increased number of examination of sputum. There has also been a considerable increase in the number of examinations for diphtheria. An increasing number of samples of milk from the various dairies in the city have been bacteriologically examined. There have also been requests for the bacteriological examination of food samples.

For the ensuing year it is proposed to expand the work still further. It is proposed to keep a close bacteriological check on all dairies supplying milk in the city. It is also proposed to do Wassermann reactions for the city as part of the public health work.

It is also proposed to do an increased amount of public health chemistry in the examination of water, foods, etc.

This will entail not only the necessity for further space accommodation, but also increased help, technical and clerical, as it means a greatly increased amount of work, not only in the performance of examinations but also in the preparation and upkeep of the necessary media and outfits. But there is no doubt that the importance of the work warrants this.

Bacteriological examinations of the city water have been made at frequent intervals. Attached is a detailed statement of the examinations carried out during the year.

CITY LABORATORIES,

WM. J. DEADMAN, B.A.
Director.

REPORT OF THE LABORATORY.

Examinations for Diphtheria Bacilli.

Month.	Pos.	Neg.	Total.
1918.			
November	27	115	142
December	16	120	136
1919.			
January	29	140	169
February	18	467	485
March	32	240	272
April	24	233	257
May	11	187	198
June	29	227	256
July	34	91	125
August	21	249	270
September	66	787	853
October	110	1,566	1,676
Total	417	4,432	4,849

Examination of Sputum for Tubercle Bacilli.

Month.	Pos.	Neg.	Total.
1918.			
November	6	22	28
December	11	32	43
1919.			
January	3	40	43
February	3	26	29
March	1	59	60
April	6	49	55
May	6	50	56
June	9	79	88
July	7	64	71
August	7	95	102
September	7	67	74
October	7	67	74
Total	73	650	723

Smears for Gonorrhoea.

Month.	Pos.	Neg.	Total.
1918.			
November	7	36	43
December	10	26	36
1919.			
January	10	33	43
February	13	49	62
March	13	61	74
April	11	74	85
May	18	60	78
June	12	61	73
July	24	83	107
August	16	45	61
September	13	76	89
October	12	62	74
Total	159	666	825

Examinations of Blood for Widal Reactions.

Month.	Pos.	Neg	Total.
1918.			
November	4	8	12
December	0	5	5
1919.			
January	2	1	3
February	0	1	1
March	0	1	1
April	0	0	0
May	0	0	0
June	0	0	0
July	3	7	10
August	4	13	17
September	3	18	21
October	2	13	15
Total	18	67	85

Examinations of Blood for Wassermann Reaction.

Month.	Pos.	Neg.	Total.
1918.			
November	13	47	60
December	18	58	76
1919.			
January	17	56	73

February	18	51	69
March	16	41	57
April	18	49	67
May	22	54	76
June	26	51	77
July	32	104	136
August	33	81	114
September	37	83	120
October	31	81	112
Total	281	756	1,037

Annual Report of Dental Clinic.

Total treatments	2,619
Total extractions	1,860
Total examinations	10,768
Fillings—	
Amalgam (silver)	609
Petroid cement	342
Copper cement	575
Gutta percha	266
Temporary	108
Silver nitrate	1,185
Miscellaneous operations	119
New cases	1,360
Completed cases	1,008

Respectfully submitted,

W. G. Manning, D.D.S.
H. A. Thompson, D.D.S.

Report of Public Health Nurse.

Visits *re* diphtheria	92
" scarlet fever	104
" typhoid fever	3
" measles	21
" chickenpox	83
" whooping cough	7
" mumps	21
" scabies	60
" impetigo	30
" eczema	5
" ringworm	8
" tuberculosis	42
" poliomyelitis	3
" influenza	18
" smallpox contacts	54
" vaccination	4
" dental clinic work	10
Number of families visited and instructions given *re* quarantine	294
" treated for minor skin diseases	11
" permits issued for return to school	26
" days assisting with vaccination	2
" days nursing at public institutions	29½
" diphtheria cultures taken	1,066
" times assisting, administrating antitoxin	28
" quarantined diphtheria carriers	12
" patients examined for release from quarantine	114
" sanitary inspections	424
" cases reported for relief	3
" re-inspections	199
" total visits	1,461

TUBERCULOSIS.

Report of Tuberculosis Nurse.

Below please find report from the Down-town Dispensary of the Sanatorium for the year ending October 30th, 1919.

Owing to the epidemic of influenza the dispensary was closed for the months of October, November and December, 1918, for all but advanced out-of-town, or cases especially in need of assistance. In these three months 176 new cases were registered.

During the year, 1,515 persons were examined for tuberculosis. 598 of these were new cases and 917 are patients under observation. Some of these patients after a few weeks of more special attention to rest and diet become normal, while others finally have to be recommended for sanatorium treatment.

Home treatment in the early stages of tuberculosis is most unsatisfactory. In a large majority of cases, after a few days' or weeks' rest, the patient feels perfectly well, and his or her relatives and neighbors think he *is* perfectly well. Consequently the instructions of the attending physician are not carried out. This frequently occurs with patients moderately advanced when treatment is most important.

If every case of early tuberculosis could have treatment in a sanatorium, advanced cases would be minimized to a very large extent.

From the 598 new cases, 264 were children of 14 years and under. A considerable number of these children were found to have diseased tonsils or adenoids and were referred to the General Hospital for treatment. 19 men, 27 women and 71 children had incipient pulmonary tuberculosis; 25 men, 16 women and 5 children were found to be moderately advanced, and 9 men and 5 women were far advanced consumptives; 35 men, 33 women and 52 children were recommended for sanatorium treatment. 83 of the new patients registered came from the surrounding districts.

The Visiting Nurse made 1,531 home visits. 418 were new patients. Living conditions in the city are comparatively good. In some homes, with the increased cost of living, there has been a tendency to overcrowding, but not to any serious extent.

It is now generally conceded that the first infection from tuberculosis occurs in infancy, or childhood. Therefore, the teaching of hygiene in the homes is a very important branch of social service work. Prevention is equally, if not more, important than curative measures, and although poverty may, to a large extent, be responsible for conditions that pre-dispose to tuberculosis, the lack of intelligence and education in the raising and feeding of children does more.

Practically all infection from tuberculosis comes from the home or indoors, as sunshine and air are our best disinfectants. Keep the home clean and free from dust, let in lots of sunshine and fresh air. Children contract this disease very easily and should be kept away from consumptive relatives. With 10 hours' sleep every night and plenty of plain nourishing food, it is improbable that they will develop this disease.

The nationalities of our different patients are: Canadian, 384, English, 130, American, 32; Scotch, 29; Irish, 10, Italians, 12; Russians, 18; Polish, 8; other nationalities, 19.

During the year 138 patients discharged from the sanatorium have been added to the home visiting list. Patients leaving the sanatorium as arrested cases receive occasional visits or come to the dispensary for re-examination, to make sure that they are again fit to take up the active duties of life. Others continue treatment at home under the supervision of their family physician.

Voluntary contributions amounted to $13.45; money from the sale of thermometers and supplies, $35,45. $90.00 was drawn from the Juliette Doolittle Fund. This supplies 390 quarts of milk to children in need of a little extra nourishment than what the family could afford, also contributed largely toward the purchasing of comforts and delicacies for a few patients who were very ill.

The Billiken Club has been most helpful in supplying milk, eggs and clothing to many of the tuberculous families, and the kindly interest they have shown to each one will be long remembered in these unfortunate homes.

Respectfully submitted,

Mrs. C. H. Jarvis.

KINGSTON.

KINGSTON, November 7th, 1919.

The Chairman and Members of the Local Board of Health.

GENTLEMEN,—I beg to submit herewith my report for the year ending November 1st, 1919. In that time the following cases of infectious diseases were reported to me by local physicians:

Scarlet fever	80
Diphtheria	26
Infantile paralysis	6
Chickenpox	6
Smallpox	1
Measles	1
Typhoid fever	1

In addition to these, I received reports of a large number of venereal cases, particularly from the military authorities. These cases were all investigated as required by law and ordered under treatment. In no case was it necessary to do more than warn the patient of the necessity for treatment and the penalty for non-compliance with the order.

The problem of infectious disease is always with us, and until the cause of such diseases as measles, scarlet fever, etc., has been worked out and serology has given us specific remedies for these as it has for diphtheria and typhoid, we cannot hope to do more than hold epidemics of these diseases in check, for it has become apparent to investigators that much of the contagion in these diseases is from moist secretions from nose and throat of infected patients in the early stages before diagnosis is possible. It is also quite certain that these diseases are not spread to any great extent by the cases that have been recognized and put under treatment, but by the unrecognized cases that are mild in type, and never come under a physician's care but wander about at will in the community. These have frequently quite recovered from their apparently slight indisposition when a physician hears by accident that this one has had a sore throat or that another was scaling three weeks ago, and so forth.

The school nurse has been invaluable in hunting up and reporting cases of this kind, but the damage is often done before the case comes under observation. The proposition of the Women's National Council to have a nurse attached to the Health Department, who shall make frequent rounds among the poor, giving advice and assistance where needed, is one worthy of careful consideration. A very mistaken idea of the cause of these diseases is prevalent even among those who should know better, and that is that disease is due to filth; that diphtheria thrives in sewers, and that other germs originate in piles of refuse. As a matter of fact, most of our known infectious diseases are transmitted only on the manner that I have already mentioned or by handling articles recently contaminated by infected persons. Germs have neither wings nor legs, and have to be introduced into the human body by means already mentioned, or in food and drink, and so while piles of refuse are unsightly and often of foul odor their power to originate disease or spread disease is an exploded myth. As a matter of fact, fresh air and sunlight are the most deadly enemies to disease germs of all kinds.

The need of a modern, up-to-date hospital for treatment of infectious diseases is a pressing necessity in this community. The isolation building at the General Hospital is entirely inadequate to cope with the situation, and now that plans for the enlargement of the General Hospital are being discussed the city should see to it that such extension should include a thoroughly modern isolation hospital to which all who wish to take advantage of its services will be able to obtain admission. Of course, a severe epidemic may over-run any hospital accommodation provided, but what is advocated is an institution that can take care of the average needs of the community.

The prevalence of small pox in many parts of Ontario has naturally been a source of anxiety to local Boards of Health. History has shown that there is one remedy for smallpox, and that is vaccination. Thorough vaccination of the entire population will stamp out any epidemic of this disease in two weeks' time, and having this in view, the local Board has notified the City Council of the dangers of a visitation of this plague, and has asked the School Board and other organizations to encourage vaccination as a preventative. We had one case here in June which was early recognized and isolated. Since then, none have been reported, but at any time we may have an outbreak from people arriving from infected districts.

I have had only one case of typhoid reported to me this year. This is a satisfactory showing and is due largely to the fact that with the improved apparatus installed by the Waterworks Department, our water supply is now efficiently chlorinated.

The matter of a clean milk supply is another very important subject in cities and towns. During the war period it was a question of producing sufficient milk of any kind for the minimum requirements of the population, as farm help was scarce and the cost of labour high. Now that we are getting back to normal conditions again, it would be wise for us to take up the question and press for a resolution. It is possible by the most rigid methods of inspection of herds, byres, milkers and methods of cooling, handling, transportation, etc., to eliminate many of the conditions which lead to disease and death, particularly among infants, but even under such methods there are still many uncontrollable factors, and I have long since come to the conclusion that the only safe milk for urban population is pasteurized milk. Pasteurization is the one method by which disease can be eliminated, and the objections to the use of such milk have been effectively answered. This might mean that the municipality would have to go into the milk business and handle the milk from the time it is brought into the city until it reaches the consumer. It would mean, however, that every person in the community would receive pure milk, and even if it had nothing else to recommend it, it would be well worth the investment, but experience has shown that it would pay as a business proposition.

Another matter that comes indirectly under my notice is the care of the aged and infirm in the Home for the Aged. The Government has forced counties and municipalities to see that their poor and helpless are housed, fed and given medical attention. At the same time, our general hospitals and hospitals for insane are quite properly assuming the attitude that they exist for the purpose of treating acute cases. Thus, many old people, somewhat infirm in body, frequently also in mind, but not dangerous to themselves or others, who previously found refuge in these hospitals are now being thrown back on the municipalities to be cared for in old people's homes. This means that the staff of our home will have to be greatly increased. Already the superintendent is overburdened by persons who require the attention of a nurse or an orderly, and the addition of one of each to the staff is now an urgent necessity.

The housing problem is another important matter worthy of serious consideration. It is impossible to make people clean by legislation, and many have no instincts of cleanliness and will, in a short time pollute sanitary surroundings. However, we do recognize the fact that insufficient air, light and floor space are detrimental to man's best physical, mental and moral development, and so it is right that we should try to secure for the individual the minimum requirement along these lines. The high cost of labor and the hesitancy of builders to undertake anything speculative in this line at present add to the difficulty of the problem, but we have some houses here in Kingston that should be closed, and will be closed as soon as any decent accommodation can be provided for those now occupying them.

During the past year death removed a capable and conscientious official, in the person of the late Nicholas Timmerman, for many years Sanitary Inspector. His one object in life was to do his duty and he always did it fearlessly and conscientiously. Since last May his work has been done by Mr. William Carson, and I can speak no greater praise for him than to say that he is doing his work in the same efficient way as his predecessor.

All of which is respectfully submitted.

A. R. B. Williamson,
M.H.O.

KITCHENER.

Kitchener, November 28th, 1919.

The Chairman and Members, Local Board of Health, Kitchener, Ont.

Gentlemen,—I beg to submit herewith my annual report for the year 1919, on the health and sanitary conditions.

Although the severity of the Spanish Influenza had abated before November 15th, 1918, there were a number of cases during the first three months of the year.

There were twenty-eight deaths registered from pneumonia during the year, and in eighteen of these the primary cause was given as influenza or la grippe.

There were 222 deaths registered during the year, of this number 44 were registered as still born, or premature born infants.

There were eleven deaths from tubercular affection, sixteen deaths from cancer, three cases of typhoid fever reported, but no deaths.

There was an increase in the number of cases of scarlet fever, sixteen cases being reported, but no deaths; seven cases of diphtheria, but no deaths; three cases of smallpox, no deaths. There was one death from whooping cough.

The number of births registered during the year was 503.

Samples of city water were regularly sent to the Provincial laboratories for examination and the reports received were satisfactory.

The milk supply was good as to cleanliness. The quality on the whole was good, and up to the Government standard for butter fat.

Since my last annual report, the death has occurred of our late sanitary inspector, Mr. George Buchhaupt. As you all knew him and knew of his work, I feel it unnecessary to dwell upon the loss, not only to this Board, but the whole community has sustained. The new appointee of the Council, Mr. Harry Rau, is successfully coping with the many problems of the position. I am sure that you will all give him your advice and assistance.

JNO. MCGILLAWEE,
Medical Officer of Health.

LONDON.

LONDON, ONTARIO, November, 1919.

His Worship, the Mayor and Council of the City of London.

GENTLEMEN,—I beg to submit the report of the Board of Health for 1919.

Your Board of Health has worked together; the health condition of the City of London, generally, is very satisfactory, though much still may be done.

During the year, many complaints from ratepayers were considered by the Board and Medical Officer of Health. Conditions complained of have been improved and, in most cases, remedied. Lack of housing accommodation, however, was the cause of the Board's failure to close up some dwellings. Something must be done to provide sanitary houses. Sewer connections and conveniences have been extended, and the Board appreciates the co-operation of the Council in the matter.

Bakeshops and butcher shops have been carefully watched. The regulations of the Board, as revised, have been enforced with satisfactory results.

The new system of house to house back yard inspection is proving to be more effective. The sanitary inspectors are all the time on duty. The City of London will compare favorably with any city in the Province.

The Board is kept well advised of all infectious diseases reported and reports by physicians are much more complete than heretofore. Fortunately, by circumstances and watchful care, we have, up to the present, had no serious epidemic.

The milk supply has been well looked after. The publishing of Dr. Tamlin's reports in the *Free Press* and *Advertiser* was money well spent. The vital importance of this matter is generally recognized. Dr. Tamlin has patiently and persistently followed up his inspections and recommendations with results that are most valuable. It is, however, a never ceasing struggle. The high cost of living affects the price of milk. The policy of your Board is to secure safe and sanitary milk of the best quality attainable.

The water examinations show that the water supply is not quite satisfactory. The Water Commissioners do not appear to realize the danger of contamination by the admission of surface water. The Board of Health must soon determine what shall be done. It must, of course, be understood that the water supply, while perhaps too limited, is generally as pure as can be found.

The policy of the Board of Health to compel connection of every dwelling with a sanitary sewer is being enforced with good judgment by the inspectors, but with relentless persistence. Results will follow. The drainage of the north and southeastern portions of the city is now undertaken; London West system has been started, and the city will soon have to undertake the drainage of low lying lands along the river bank. The west end disposal works cannot, and should not, be much longer ignored.

The appointment of Mr. Young as Plumbing Inspector, is a most important step in the right direction. The Board appreciates the co-operation of the Council in revising the plumbing regulations. One of the greatest menaces to public health is at last placed within measurable distance of abatement.

The outstanding accomplishments of this year's Board of Health are: Centralization of sanitary inspections under one head with resulting increased efficiency; regulations for bakeshops and butcher shops; publishing in full in the newspapers the reports of milk inspection; the appointment of a plumbing inspector and the revision of plumbing regulations; and the sanitary sewer system for the eastern and western portions of the city.

The expenditures of the Board for the year were approximately $12,000.00.

I desire to express the thanks of the Board to the secretary and treasurer for their ever ready help, the sanitary inspectors for their faithful, efficient work, the health nurses and Dr. Tamlin for their devotion to their duties and the Medical Officer of Health for his self-sacrificing labours. The Hygienic Institute staff have rendered the Board every assistance possible.

All of which is respectfully submitted.

LONDON, ONTARIO, November, 1919.

His Worship, the Mayor and Council of the City of London.

GENTLEMEN,—Pursuant to the provisions of the Public Health Act, I beg to submit our annual report.

The Board has held fourteen meetings. His Worship, the Mayor, has attended seven; J. H. Saunders, thirteen; Dr. Arnott, eight; Mrs. Partridge, eight; and Dr. Downham, thirteen.

COMPLAINTS.

Thirty-one complaints as to sanitary conditions were dealt with by the Board.

BAKESHOPS.

Bakeshop regulations were considered, approved and enforced.

SLINK VEAL.

Five suspicious cases were investigated and, on three occasions, offenders prosecuted successfully for unlawful sales.

CONTAGIOUS DISEASES.

Were regularly reported. Three hundred and fifty-four cases.

TUBERCULOSIS NURSE.

Regularly reported. One hundred and thirty-five cases.

SANITARY INSPECTIONS.

Seven thousand three hundred and sixty-seven reported.

HERDS AND DAIRIES.

Four hundred herds inspected.

MILK.

Six hundred samples tested.

SEWERS.

Eighteen sewers ordered constructed

BUTCHER SHOPS.

Regularly reported.

Your obedient servant,

S. BAKER,

Secretary Board of Health.

DR. DOWNHAM'S ANNUAL REPORT, 1919.

M.O.H. Annual Report.

Dr. W. S. Downham reporting that from a public health point of view, the year 1919, in London, had a bad beginning, for it was about this time that we were visited with the second wave of the influenza epidemic, in this city. The second wave was not as severe as the first, yet it was very serious, and the Board of Health met several times to consider measures to keep people from congregating together, such as closing theatres, churches, dance halls, pool rooms, etc., and the limiting of passengers on street cars to seating capacity, only, as was done during the first wave of the disease; however, the Board did not consider these measures necessary a second time, but instead, the local papers were freely used advising the people to avoid crowds, especially Christmas shopping crowds in stores, also the theatres, dance halls, etc. These advertisements and warnings had quite a marked effect on the general public. Many cases came under Dr. Downham's own observation where people managed to live by themselves almost entirely

After the influenza had passed away there was a general decrease in all the communicable diseases, due I presume, to people exercising more care regarding sick members of the family, such as calling in a doctor sooner than usual, better nursing, etc., also more care was taken to avoid exposing members of the family to disease. Of course, the total number of cases of communicable diseases reported this year is greater than previous years, but this is on account of several more diseases being added to the list that are to be reported to the Medical Officer of Health. Of course, these added diseases make more work, and the work of the M.O.H. office has become very heavy for one doctor, especially during the fall and winter months. There are many calls to be made, and there is also considerable office work.

The work of all branches of the Health Department is on the increase and I would mention something in regard to the different departments of this office. First, I would mention, the increased amount of work done by our veterinary inspector, Dr. C. Tamlin. Several hundred samples of milk were taken by him on the street and tested as to quality, also for adulteration; several hundred inspections were made of dairy herds and farms supplying milk to the city. The affect, of all this has been noticeable in the form of better milk. It was necessary to publish reports and in some cases to prosecute to get the desired results.

Our sanitary inspectors have worked consistently throughout the year, and we believe our city to be as clean and tidy as any in Ontario. They have frequently had to resort to police court to get their demands carried out.

Miss Barons, our nurse for visiting tuberculosis patients, has been very busy. Many cases of this disease have been reported the past year and each case usually requires several visits. The total number of visits in this connection amounts to about four thousand.

Miss Friend, our nurse on contagious diseases, has her time fully occupied, especially during outbreaks of some disease. In addition she devotes part of her time to child welfare work and attends child welfare clinics at Victoria Hospital.

Up until very recently, London has never had a plumbing inspector, but toward the end of the year the Board of Health recommended to the City Council that one be appointed; as a result, Mr. James Young was appointed on the recommendation of the Board of Health, after a number of candidates had been examined by an examining body appointed by the local board. Since the appointment was made the plumbing by-laws have been revised and amended in accordance with the Provincial regulations and a license fee has been set.

Among the more recent additions to the list of reportable diseases the number of cases of venereal disease outnumbers any of the others. As a rule, those suffering from venereal disease are glad to take treatment when they learn the seriousness of their case. However, a number fail to think seriously of their condition and want to stop treatment when the acute symptoms are over. It is often difficult to locate these patients and arrange for them to continue treatment and to conduct themselves in such a manner that will not infect others. In this regard, I wish to state that it is easier to control males than female patients.

This year the members of the local Board of Health have been very much interested in the work and have given freely of their time and ability. Under the direction of our able chairman, who has had many years' experience as an alderman, and controller, the board has had a successful year.

NIAGARA FALLS.

Report from December 1st, 1918, to December 19th, 1919.

Inspections at schools, 23,125.
Visits made to pupils' homes, 301.
Pupils having teeth attended to, 121.
Pupils having tonsils and adenoids removed, 34.

CONTAGIOUS AND INFECTIOUS DISEASES.

Whooping cough	46	Ringworm	2
Measles	3	Impetigo	28
Mumps	12	Acute Eczema	4
Chickenpox	24	Pediculi of the hair	51
Scabies	7	Acute tonsilitis	21
Diphtheria	4	Trachorma	1

OTHER DISEASES.

Defective hearing	4	St. Vitus dance	1
Defective vision	..	Cyst under tongue	1

Several cases of "T.B." glands of the neck, which were removed

During the year a great many children were out with minor illnesses, such as sore throat and cold, but were able to return to school in a few days.

Kindly submitted by

MISS ALLAN,
School Nurse.

NIAGARA FALLS, ONT., December 27th, 1919.

I beg to submit the report of the City of Niagara Falls for the year 1917.

We have had very few contagious diseases during the present year. One case of smallpox in a girl of seventeen. This case was a very modified form, showing a mixed infection of syphilis. Six years ago, about five thousand were vaccinated, and this autumn, owing to regulations passed by American authorities, about three thousand were vaccinated, which, no doubt, had a good influence in so far preventing smallpox.

CHICKENPOX.

We have had about twenty cases of chickenpox, all in children, none, however very severe.

MUMPS AND WHOOPING COUGH.

These two diseases have been fairly prevalent throughout the city, about fifty of each case reported. No deaths, however.

SCARLET FEVER.

A few cases of this disease, about ten in all. Disease very mild, and no deaths.

DIPHTHERIA.

We have had about three cases of this disease, and two deaths. This was owing to the parents not calling in a doctor until about the third day, thinking it was tonsilitis. We have had a lot of sore throat, having a white or dirt-colored membrane on the tonsils. This lasted in same cases six weeks, with very few serious symptoms.

We now have an incinerator built, at a cost of about $21,000, this will be ready for use in January, 1920.

Also all our ashes are gathered once a week, which prevents the necessity of throwing them on the street, or piling them up in the backyard.

Our milk supply is improved much lately, although through the summer we had some trouble owing to our milk, which is nearly all pasteurized, going sour in less than twenty-four hours. While inspecting the farmers' barns and dairies, I found some foul-smelling, stagnant water, and manure piles, which I had removed.

Our meat supply is good, I find the greatest difficulty in having the producers keep a netting over it on the market, during the warm weather. I intend to enforce the law rigidly this summer.

Our school nurse is doing excellent work, in the six schools in the city. She visits each at least twice a week. Some 160 tonsils and adenoids have been removed this year through her inspection. Numerous cases of decayed teeth have been filled, straightened and extracted. Numerous cases of skin infection have been treated. We propose, if possible, to have a visiting nurse throughout the city for the attention of poor cases, and those not able to have a nurse.

The City Council have one or two large projects in view, to be built in the near future. One is muddy run sewer at a probable cost of $350,000.00, and the other either to remove the intake for our water supply further out in the river Niagara, or couple up with the Provincial scheme which they have in view. Neither of these schemes have taken definite shape as yet.

All of which is respectfully submitted.

H. Logan,
M.O.H.

Niagara Falls.

Niagara Falls, Ont., December 20th, 1919.

Report for year 1919, of the Township of Stamford, in the County of Welland.

There has been fewer cases of infectious diseases throughout the township during 1919, than any previous year since 1913, which was the year we had so much smallpox and typhoid fever.

The sanitary inspector has visited each farmyard, who supplies milk to any corporation or city, twice during the year, and finds a great improvement in sanitation. Manure is removed one hundred feet from the milking stable or cream house. All small ponds of stagnant water are filled in. Slaughter houses have been inspected and everything in the way of offal and refuse has been properly taken care of.

Quite a number of the farmers' wells lying along or near the cutting of the Hydro canal have almost become dry. The Hydro-Electric Power Commission are supplying these farmers with water drawn by teams until they can get them an adequate supply.

I have the honour to be,
Your obedient servant,
H. Logan.
M.O.H.

OTTAWA.

Ottawa, December 13th, 1919.

Chairman and Members, Board of Health, Ottawa.

Gentlemen,—I have the honour to present the following annual report of the work of the Health Department for the year 1919. The report also includes the reports of the heads of the various sub-departments.

Population (Assessor's Figures), 107,732.

Population	107,732
Births registered	3,004
Still births	155
Live births	2,847
Birth rate, 1919 (1918, 28.9; 1917, 24.2)	27.88
Deaths registered	1,902
Deaths of non-residents	270
Deaths of City cases	1,632
City deaths, excluding still births	1,477
Gross death rate (1918, 22.7; 1917, 17.15)	17.6
Corrected death rate (1918, 18.2; 1917, 13.72)	13.7
Deaths under 1 year, total	464
Deaths under 1 year, non-resident	74
Deaths under 1 year, city cases	390
Infant death rate (per 1,000 live births)	136
Infant death rate, 1918	157

The above figures show the lowest death rate recorded for the city for any year in the last decade.

The birth rate has fallen slightly below that of last year but is far in excess of any previous year. This, however, is probably attributable to the better reporting of births during the last two years—due to the action taken by the Province in prosecuting cases of failure to report births.

COMMUNICABLE DISEASES.

Communicable diseases have not been prevalent during the year and both the number of cases and number of deaths show a considerable decrease from previous years. The following table shows the incidence and mortality of communicable diseases by months:—

COMMUNICABLE DISEASES REPORTED FOR 1919. ALSO NUMBER OF DEATHS.

Diseases.	1918.		1919.											
	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	Total.	Deaths.
Tuberculosis (Pulmonary).	16	14	32	13	14	10	12	18	4	13	8	8	162	95
Typhoid Fever	0	0	1	0	1	1	0	3	2	1	13	1	23	7
Scarlet Fever	10	15	7	25	21	16	68	19	11	14	13	24	243	4
Diphtheria	25	23	31	16	14	12	22	12	9	14	9	16	203	20
Smallpox	0	2	7	6	17	1	2	1	0	0	2	0	38	0
Measles	2	0	1	0	1	0	1	10	25	41	21	64	166	1
German Measles	0	0	0	0	0	1	1	0	2	0	0	2	6	0
Chickenpox	12	11	9	16	24	23	20	17	2	5	16	23	178	0
Mumps	8	19	29	45	71	55	75	40	1	1	2	6	352	0
Whooping Cough	1	6	14	2	16	5	6	2	9	25	19	38	143	3
Erysipelas	0	0	1	1	0	0	1	1	1	0	1	1	7	4
Poliomyelitis	0	0	0	0	0	0	0	2	1	1	0	0	4	0
Cerebro-spinal Meningitis.	1	0	0	0	0	0	0	0	0	0	1	0	2	0
Totals	75	90	132	124	179	124	208	125	67	115	105	183	1527	134

TUBERCULOSIS, 1919.

The attached tables show a decrease from 1918 of 12½ per cent. in the number of cases reported, and of 25 per cent. in the number of deaths:—

	Cases Reported	Deaths	Deaths	Death Rate from all Forms of Tuberculosis per 10,000 Population
		Pulmonary Tuberculosis	Other forms of Tuberculosis	
November	16	10	2	1919—10.9
December	14	9	2	1918—15.1
January	32	15	0	1917—12.7
February	13	6	1	1916—13.3
March	14	11	5	1915—15.8
April	10	5	1	
May	12	5	3	
June	18	5	3	
July	4	11	2	
August	13	10	2	
September	8	5	1	
October	8	3	1	
Total	162	95	23	

DEATHS FROM TUBERCULOSIS BY WARDS FOR 1919.

Ward.	Pulmonary.	Other Forms.	Total.
By	7	3	10
Capital	11	1	12
Central	7	2	9
Dalhousie	14	1	15
Ottawa	11	2	13
Rideau	2	0	2
St. George's	17	2	19
Victoria	6	2	8
Wellington	16	3	19
Outside	4	7	11
Totals	95	23	118

TYPHOID FEVER.

Origin	Cases Reported	Deaths
Ottawa	4	1
Other points in Ontario	5	3
Meach Lake	3	0
Hull	2	0
Other points in Quebec	9	3
Total	23	7

Of the 23 cases of typhoid reported during the year only 4 originated in Ottawa. The one fatal case from Ottawa was not reported until after the death of the patient, and the diagnosis was not confirmed by Widal Test.

Two of the cases originating in the city were nurses who developed the disease from caring for typhoid patients in the hospitals.

No source of infection could be traced in the other two cases.

SCARLET FEVER.

Cases have been much fewer in number and for the most part of the mild type so prevalent the previous year—243 cases with 4 deaths—a mortality of 1.6 per cent. as compared with 592 cases and 7 deaths in 1918.

DIPHTHERIA.

There were 243 cases reported and 20 deaths as compared with 366 cases and 34 deaths in 1918. Diphtheria has always been very prevalent in Ottawa and, although the 1919 figures are the lowest for a decade, the mortality of 9.28 per cent. might be still further decreased if parents did not so frequently delay calling in a physician in cases of sore throat, until the condition of the patient is hopeless. Diphtheria, if treated early, is one of the most curable of diseases, but if treatment is delayed, it is one of the most hopeless.

Provision has been made to have throat swabs examined free of charge at the City Laboratory by day and at the Isolation Hospital by day or night. Sterile culture tubes and swabs are issued free to any physician, and where patient are indigent, the cultures are called for and taken to the laboratory by free messenger service. Diphtheria antitoxin is supplied to all physicians without charge, and in any quantity.

The medical profession of the city has made good use of these aids in combating diphtheria, and it would appear that any further progress to be made can only come from educating the public to the dangers of delay in the treatment for "sore throat."

SMALLPOX.

During January, February and March, 30 cases of smallpox occurred in Ottawa, 17 in the month of March. The majority were of a mild type, a few quite severe, but none fatal. The Hopewell Hospital was opened to accommodate these patients, and was kept open until May. In the last seven months only six cases were reported—mostly from outside sources.

INFLUENZA.

The epidemic of influenza which occurred in 1918 and reached its maximum in October still shows its influence in the high death rate from influenza and pneumonia in the months of November, December, January and February of the current year.

During this period of four months, there were 99 deaths from influenza and 115 from pneumonia as compared with 2 and 53 for the corresponding period of 1918. Since this time there has been no recurrence of the disease in the city.

INFANT MORTALITY AND CHILD WELFARE.

During the year there were 2,847 live births in the city and 309 deaths of residents under one year of age, giving an infant mortality rate of 136.9 per 1,000 live births as compared with 157 in 1918. While this figure is still higher than in many other cities and higher than it should be, nevertheless it shows a considerable improvement.

Of the 464 deaths registered under one year of age, 74 were born outside the city of non-resident parents and therefore do not show in the city birth rate and are therefore not included in the infant death rate. Of these 464 deaths, 231 were due to prematurity, congenital debility or congenital malformation, and cannot be considered as having a fair chance of surviving. A large number of these 231 can be considered as nonviable.

There remain 233 deaths of viable children of which 106 were due to diarrhœal diseases and should be largely preventible.

With a view to lessening the number of these unnecessary and preventible deaths, the work of the Baby Welfare nurses has been extended. The staff has been increased from four to nine nurses and the city divided into nine districts with a city district nurse for each section. This enables each nurse to devote more time to the home visiting and instruction of mothers, as less time is wasted than in covering a larger area.

The Baby Health Stations are being continued as in former years, with a nurse in charge of each station every afternoon and a specialist in attendance at each station twice a week in summer and once a week in winter. These stations are being well patronized, especially on clinic days, as Miss Davidson's report will show. By means of these clinics and their home visiting, the district nurses are continually getting more in touch with the people and are able to do more useful work, particularly in regard to pre-natal cases.

During the autumn a baby contest was held at the Central Canada Exhibition under the direction of the Health Department, and with the assistance of the Victorian Order. The baby show had a good effect in stimulating the interest of the public, and particularly of the mothers, in infant welfare work. It is expected that this will be made an annual affair.

On the opening of the autumn school term a start was made in the inspection of school children in the Separate Schools. Each nurse visits the schools in her district twice a week and inspects the children class by class. A record card is made for each child and kept on fyle at the school. Where physical defects are found, the parents are notified and requested to have the defect attended to by their family physician or at one of the free hospital clinics. Each nurse has from 800 to 1,000 school children under observation.

The School Board has co-operated with the Health Department in this work and so far the response by the parents has been very satisfactory. A large number of school children have already been treated for adenoids, enlarged tonsils, defective teeth and defects of vision, and it is certain that, by a systematic follow-up of defective children, the general physical standard can be impróved.

The inauguration of health classes, the teaching of elementary hygiene and health habits in primary classes, the provision of hot lunches, the installing of weighing scales in the schools, and the establishment of a school dental clinic, are points that will have to be taken up in the near future in connection with the extension of this work in the schools.

CANCER.

The importance of cancer as a cause of death is emphasized by the fact that this year there were 10 per cent. more deaths in the city from cancer than from pulmonary tuberculosis.

There is at present in Ottawa no accommodation for incurable cancer, nor any institution where these cases can be accepted and cared for. As a result of this situation, many cases of real hardship arise yearly in this city with which we have no satisfactory means of dealing.

These cases are not suitable for admission to a general hospital and should not occupy beds that might be more usefully employed. They should be dealt with in a Home for Incurables, and I would recommend that provision be made by the city to meet this urgent need of accommodation for the care of indigent incurables. The city grants to Homes for Incurables should be increased if necessary to cover cancer cases and should be conditional upon such cases being admitted upon the recommendation of the Charity Officer and the Board of Health.

I wish to express my deep appreciation of the services of Dr. Robert Law, who for the four and a half years of my absence ably filled the position of Medical Officer of Health.

I also desire to thank the members of the Board of Health for their interest and co-operation throughout the year in all matters of public health.

Tables of vital statistics and the reports of the various sub-departments are appended.

All of which is respectfully submitted.

T. A. LOMER,

Medical Officer of Health.

DEATHS ACCORDING TO AGES.

Ages.	1918.		1919.										
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Total.
Under 6 months .	25	24	24	26	29	25	23	22	25	45	42	29	339
6 months to 1 year	3	4	14	8	13	6	7	12	20	17	17	8	129
1 to 2 years....	4	5	12	1	6	3	6	1	3	10	6	8	65
2 to 5 "	11	5	3	7	8	2	5	7	8	2	5	4	67
5 to 10 "	3	3	2	4	2	6	4	2	5	1	1	3	36
10 to 15 "	2	3	4	2	2	1	2	1	3	3	2	0	25
15 to 20 "	6	4	6	3	3	4	4	4	0	4	2	5	45
20 to 25 "	11	3	7	12	6	4	3	4	6	7	4	4	77
25 to 30 "	9	14	20	10	6	3	8	3	2	4	3	1	83
30 to 35 "	17	6	14	9	3	3	3	2	4	2	3	4	70
35 to 40 "	8	3	12	7	5	3	3	2	5	4	3	4	59
40 to 45 "	8	10	8	7	2	3	9	2	5	3	4	4	65
45 to 50 "	3	3	4	6	8	3	0	2	4	8	4	8	53
50 to 55 "	5	6	4	5	6	5	5	2	5	7	2	7	59
55 to 60 "	12	9	10	6	8	3	7	7	6	2	6	9	85
60 to 65 "	5	4	7	8	9	6	7	9	6	9	4	9	83
65 to 70 "	10	11	11	8	10	5	13	2	3	12	11	5	101
70 to 75 "	15	7	9	5	10	11	7	2	7	7	9	5	88
75 to 80 "	6	6	10	4	13	8	8	5	7	6	4	7	84
80 to 90 "	8	10	11	10	7	7	8	9	10	6	10	16	112
90 up...........	2	1	1	2	6	1	1	1	0	2	4	1	22
Totals........	173	141	193	150	162	112	133	101	134	161	146	141	1,747
Stillborn......	11	17	10	20	7	11	12	7	12	16	17	15	155
Total.........	184	158	203	170	169	123	145	108	146	177	163	156	1,902

DEATHS, INCLUDING STILLBIRTHS, FOR 1919, BY WARDS.

Wards.	Population.	1918.		1919.											Per 1,000 Population.
		Nov.	Dec.	Jan.	Feb.	Mar	Apl.	May	June	July	Aug.	Sep.	Oct.	Totals	
By	8,562	14	14	23	17	11	10	6	9	9	19	13	13	158	18.4
Capital	15,824	17	11	18	10	15	9	14	3	13	11	21	11	153	9.6
Central	13,516	10	14	21	16	15	9	8	10	16	13	18	7	157	11.6
Dalhousie	19,971	33	33	35	32	24	23	30	23	30	40	28	31	362	18.1
Ottawa	10,081	19	9	21	16	19	18	16	8	17	17	17	12	189	18.7
Rideau	3,757	4	3	8	6	6	2	5	1	5	6	3	7	56	15.1
St. George's	14,187	20	22	22	23	21	17	7	8	9	13	16	22	200	14.0
Victoria	7,109	9	12	9	7	7	8	12	4	10	15	10	7	110	15.6
Wellington	14,725	28	14	25	26	27	12	24	23	10	21	16	21	247	16.7
Outside	....	30	26	21	17	24	15	23	19	27	22	21	25	270	.....
Totals	107,732	184	158	203	170	169	123	145	108	146	177	163	156	1,902	

DEATHS, INCLUDING STILLBIRTHS, ACCORDING TO NATIONALITY.

November 1, 1918—October 31, 1919.

Canadians	1,643	Austrian	13
English	91	Russian	4
Irish	71	Swedish	1
Welsh	1	Belgian	1
Scotch	36	Italians	4
American	20	Other Nationalities	6
Newfoundlanders	2		
French	2	Total	1,902
German	7		

DEATHS AT INSTITUTIONS FROM NOV. 1, 1918, TO OCT. 31, 1919.

C. C. G. P. Hospital	119
St. Luke's Hospital	106
Water Street Hospital	202
Misericordia Hospital	141
Dr. Hagar's Hospital	13
Emergency Hospital	6
Ottawa Maternity Hospital	46
Isolation Hospital	26
Lady Grey Hospital	39
Salvation Army Rescue Home	9
St. Patrick's Home	23
St. Charles' Home	25
Old Man's Home	2
Perley Home	7
Protestant Infants' Home	13
Total	757

BIRTHS, INCLUDING STILLBIRTHS, FOR THE YEAR 1919, ACCORDING TO RESIDENCE OF PARENTS.

Ward	Number of births	Births per 1000 Population
By	289	33.7
Capital	365	23.0
Central	207	15.3
Dalhousie	549	22.4
Ottawa	280	27.7
Rideau	86	22.8
St. George's	277	19.5
Victoria	212	29.8
Wellington	348	23.6
Outside	209	
Misericordia Unknown	115	
Maternity "	16	
St. Luke's "	2	
Salvation Army "	32	
Dr. Hagar's "	13	
Ottawa General "	2	
Home for Friendless	2	
Total	3,004	

OTTAWA, December 13th, 1919.

Dr. T. A. Lomer, Medical Officer of Health, City Hall.

DEAR SIR,—I herewith submit my annual report from November 1st, 1918, to October 31st, 1919, pertaining to the plumbing branch of the Health Department.

Permits issued during the year	598
Inspections and other matters attended to during the year	3,556

In presenting my report I may say that in the past year the work has increased to such an extent that it is impossible for one man to give efficient service to plumbing matters reported to the Health Office.

For the past three months Mr. W. Carkner was engaged as Assistant Plumbing Inspector. He has proved an efficient man for the position. I would respectfully recommend that he be engaged permanently.

BY-LAW.

Regarding the changes suggested in my last annual report, I might state that same are to be included in the proposed new By-law, which will be completed and ready for the Board to consider in the near future.

Hoping that the work performed has been satisfactory, I remain,

Yours,

S. DAUGHTRY,
Plumbing Inspector.

MATTERS ATTENDED TO.

The following matters were attended to during the year;

Water tests O.K.	925
Water tests defective	120
Smoke tests O.K.	524
Smoke tests defective	65
Complaints *re* defective plumbing	812
New tile drains installed	112
Cast iron drains installed	90
Defective tile drains removed	61
Water services examined	151
Old buildings that have installed improvements	182
Minor and miscellaneous calls attended to	400
Old plumbing remodelled	114
Totals	3,556

Vital Statistics from November 1st, 1918, to October 31st, 1919.

Disease.	1918.		1919.										Totals.
	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	
1. Typhoid fever	1	....	....	1	....	....	....	....	1	2	1	1	7
6. Measles	....	....	....	....	....	....	....	....	....	1	....	....	1
7. Scarlet fever	....	....	....	1	....	2	....	1	....	....	....	....	4
8. Whooping cough	....	....	....	....	....	1	....	....	....	2	....	....	3
9. Diphtheria and croup	2	3	....	3	....	2	3	4	....	....	1	2	20
10. Influenza	24	13	35	27	5	3	....	....	1	....	....	....	108
18. Erysipelas	....	....	....	1	1	....	1	....	1	....	....	....	4
20. Septicaemia	2	1	2	1	1	1	3	2	1	....	....	2	16
24. Tetanus	....	....	1	....	....	....	....	....	....	....	....	1	2
28. Tuberculosis of the lungs	10	9	15	6	11	5	5	5	11	10	5	3	95
30. Tuberculosis meningitis.	1	....	....	1	4	1	2	2	1	....	....	....	12
31. Abdominal tuberculosis.	1	....	....	....	1	....	....	1	....	1	....	1	5
32. Pott's disease	....	....	....	....	.. .	....	....	....	1	....	....	....	1
33. White, swellings	....	....	....	....	....	....	....	....	....	....	1	....	1
34. Tuberculosis of other organs	....	1	....	....	....	....	....	....	....	....	....	....	1
Tuberculosis of the kidneys	....	1	....	....	....	....	....	....	....	....	....	....	1
35. Disseminated tuberculosis	....	....	....	....	....	....	1	....	....	1	....	....	2
36. Rickets	....	....	....	....	1	1	....	....	1	1	....	....	4
37. Syphilis	2	3	4	2	1	....	....	3	1	....	2	....	18
39. Cancer of the buccal cavity	....	1	1	....	....	....	1	1	....	....	....	2	6
40. Cancer of the stomach and liver	3	3	3	3	1	2	5	4	3	3	3	1	34
Cancer of the bladder	....	....	....	....	1	....	....	....	....	....	....	2	3
Cancer of the peritonaeum intestines and rectum	2	1	2	2	....	1	2	1	....	1	3	1	16
42. Cancer of the female genital organs	....	....	....	....	....	....	1	....	2	1	2	1	7
Cancer of the uterus	....	....	....	....	1	1	1	1	1	1	....	....	6
43. Cancer of the breast	1	....	....	....	1	1	1	1	....	1	2	....	8
45. Cancer of other, or unspecified organs	4	3	6	1	2	3	1	....	2	1	4	....	27
Cancer of the pancreas (Tumor)	1	....	....	....	....	....	....	....	....	....	....	....	1
46. Other tumors (female genital organs excepted)	1	....	....	....	1	....	....	....	....	1	....	....	3
47. Acute articular rheumatism	....	1	....	....	....	....	....	....	....	....	....	....	1
48. Chronic rheumatism	1	....	....	....	....	....	....	....	1	....	....	....	2
50. Diabetes	1	2	....	....	1	1	2	....	4	2	1	....	14
51. Exophthalmic goitre	....	....	1	....	3	....	....	....	....	....	1	2	7
54. Pernicious anemia	....	1	....	....	1	1	3	1	....	1	....	....	8
55. Purpura haemorrhagica, etc.	....	....	....	....	....	1	....	....	....	....	....	....	1
56. Chronic or acute alcoholism	....	....	....	....	....	....	....	....	1	....	....	....	1
61. Meningitis	2	....	....	....	....	....	....	....	....	....	....	....	2
Simple meningitis	....	....	1	....	....	1	1	1	....	2	3	....	9
62. Locomotor ataxia	....	....	....	....	....	....	....	....	1	....	....	....	1
63. Other diseases of the spinal cord	....	....	....	....	....	....	....	....	....	....	1	2	3
Paralysis agitans	....	....	....	....	....	....	1	1	....	....	....	....	2

Vital Statistics from November 1st, 1918, to October 31st, 1919.—*Continued.*

Disease.	1918.		1919.										
	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	Totals.
64. Cerebral haemorrhage, apoplexy	5	6	5	7	11	6	3	3	7	4	6	4	67
Cerebral abscess	....	....	....	....	....	....	....	....	....	....	....	1	1
Cerebral embolus	....	....	....	....	....	....	....	....	....	....	1	....	1
66. Paralysis without specified cause	2	3	....	2	....	....	1	....	....	3	....	1	12
67. General paralysis of the insane	....	....	1	....	....	....	....	....	....	....	....	....	1
68. Other forms of mental alienation	....	....	....	....	2	....	....	....	....	....	....	....	2
69. Epilepsy	....	....	1	1	....	....	1	....	....	1	....	1	5
70. Convulsions (non-peurperal)	....	....	....	....	....	....	....	....	1	....	1	....	2
71. Convulsions of infants	2	4	1	1	2	1	1	4	....	5	....	1	22
74. Other diseases of the nervous system	....	....	....	....	....	....	2	....	....	....	....	....	2
DISEASES OF THE CIRCULATORY SYSTEM.													
77. Pericarditis	1	....	....	....	....	....	....	....	....	....	....	....	1
78. Acute endocarditis	....	....	....	....	....	....	1	....	....	....	....	1	2
79. Other organic diseases of the heart	....	....	1	....	1	....	....	....	....	....	....	....	2
Chronic valvular disease.	2	1	....	4	2	....	5	1	4	....	2	1	22
Aortic insufficiency	....	....	....	....	....	....	....	....	....	....	....	1	1
Chronic Endocarditis	5	1	2	5	3	1	....	2	3	2	6	5	35
Myocarditis	3	3	4	4	5	5	4	4	5	5	2	1	45
80. Angina pectoris	1	....	1	....	3	....	1	....	....	....	....	....	6
81. Diseases of the arteries	....	....	....	1	....	....	....	....	....	....	....	....	1
Anterior sclerosis	5	8	1	1	3	3	2	2	2	4	4	2	37
82. Embolism and thromlosis	1	1	....	1	1	....	1	....	....	....	1	....	6
84. Diseases of the lymphatic	....	....	....	....	....	....	....	....	1	....	....	....	1
85. Haemorrhagica, other diseases of the circulatory system	....	....	....	....	....	2	....	....	....	....	....	....	2
DISEASES OF THE RESPIRATORY SYSTEM.													
87. Diseases of the larynx	1	....	....	....	....	....	....	....	....	....	....	....	1
89. Acute bronchitis	....	2	2	....	4	1	....	....	....	....	....	....	9
90. Chronic bronchitis	....	....	1	1	2	1	....	1	....	....	....	....	6
91. Broncho-pneumonia	7	7	9	2	6	3	5	1	....	3	1	9	53
92. Pneumonia	23	16	31	20	16	16	6	3	3	4	3	5	146
93. Pleurisy	....	1	....	....	1	....	1	....	....	....	....	1	4
Empyema	....	1	....	2	....	....	....	....	....	....	....	....	3
94. Pulmonary congestion	....	....	....	....	1	....	....	1	....	....	....	....	2
95. Gangrene or abscess of lung	....	....	....	1	....	....	1	....	....	1	....	....	3
96. Asthma	....	....	1	....	1	....	....	1	1	....	....	....	4
DISEASES OF THE DIGESTIVE SYSTEM.													
99. Diseases of the mouth and adnexa	....	....	....	....	....	1	....	....	....	....	....	....	1
101. Diseases of the oesophagus	....	....	....	....	....	....	....	....	1	....	....	....	1
102. Ulcer of the stomach	2	....	....	1	....	....	....	....	1	....	....	1	5

VITAL STATISTICS FROM NOVEMBER 1ST, 1918, TO OCTOBER 31ST, 1919.—*Continued.*

Disease.	1918.		1919.										
	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	Totals.
103. Other diseases of the stomach	....	1	1	....	5	1	....	1	....	....	1	....	10
104. Diarrhoea and enteritis. under 2 years	3	3	11	6	3	2	5	6	29	2	26	10	106
105. Diarrhoea and enteritis	....	....	1	1	....	2	1	1	3	42	2	1	54
108. Appendicitis and typhilitis	2	2	....	2	1	6	2	1	3	....	3	1	23
109. Hernia — intestinal obstruction	....	1	2	1	7	....	....	2	1	2	1	1	18
110. Other diseases of the intestines	....	....	2	....	....	....	....	....	....	....	....	....	2
113. Cirrhosis of the liver	....	1	1	....	1	....	1	....	....	1	....	....	5
114. Biliary calculi	....	....	....	1	....	....	3	....	....	....	1	....	5
115. Other diseases of the liver	....	....	....	1	1	....	....	....	1	1	....	....	4
117. Simple peritonitis (non-puerperal)	2	2	....	....	2	1	1	2	....	5	....	2	17
118. Other diseases of the digestive system	....	....	....	....	1	....	....	....	....	....	....	....	1
NON-VENEREAL DISEASES OF THE GENITO URINARY SYSTEM AND ANNEXA,													
119. Acute nephritis	....	2	....	1	....	....	2	1	2	4	1	....	13
120. Bright's disease	5	3	5	3	10	2	2	4	2	5	1	11	53
122. Other diseases of the kidneys and annexa	1	....	....	....	....	....	....	....	....	....	1	2	4
124. Diseases of the bladder, cystitis	1	....	2	1	....	....	....	....	....	....	....	2	6
126. Diseases of the prostate	....	....	1	1	....	....	1	1	....	....	1	2	7
127. Non-venereal diseases of the male genital organs	....	....	....	....	....	1	....	....	....	....	....	....	1
129. Uterine tumor (non-cancerous)	1	1	....	....	....	....	1	....	....	....	....	....	3
131. Cysts and other tumors of ovary	....	....	....	....	....	....	....	1	....	....	....	....	1
THE PUERPERAL STATE.													
134. Accidents of pregnancy.	1	....	....	....	....	....	....	....	....	....	....	....	1
135. Puerperal haemorrhage.	....	1	....	....	....	....	....	....	1	....	....	....	2
136. Difficult labour	....	....	....	....	....	....	....	....	....	....	1	....	1
137. Puerperal Septicaemia	....	....	....	2	....	....	1	....	....	....	1	1	5
138. Puerperal albuminuria and convulsions	....	....	....	....	....	....	....	1	2	1	1	....	5
140. Following childbirth	....	....	....	....	....	....	....	....	....	....	1	....	1
DISEASES OF THE SKIN AND CELLULAR TISSUE.													
142. Gangrene	2	....	2	1	....	1	2	....	1	1	....	....	10
144. Acute abscess	....	....	....	....	2	2	1	....	....	....	....	....	5
145. Other diseases of the skin and adnexa	....	....	....	....	....	....	....	1	....	....	....	....	1
DISEASES OF THE BONE AND ORGANS OF LOCOMOTION.													
146. Diseases of the bones	....	....	1	1	....	....	....	....	....	....	....	....	2
Mastoiditis	....	....	....	....	....	....	1	....	....	....	....	....	1

VITAL STATISTICS FROM NOVEMBER 1ST, 1918, TO OCTOBER 31ST, 1919.—*Continued.*

Disease.	1918.		1919.										Totals.
	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	
MALFORMATIONS.													
150. Congenital malformation	....	....	2	1	....	2	1	1	....	1	1	1	10
Congenital hydrocephalus	....	....	....	....	....	....	1	....	1	....	1	2	5
Spina bifida	....	2	....	....	1	....	....	....	....	....	2	1	6
151. Congenital debility	3	3	4	7	2	5	7	6	5	6	5	8	61
Premature birth	6	3	4	8	6	3	7	4	3	5	9	6	64
Marasmus	8	3	6	....	....	3	3	4	5	5	11	9	57
Inanition, etc.	....	1	....	....	10	....	....	....	....	....	1	....	12
152. Other diseases peculiar to early infancy, asphyxia	1	3	....	1	....	....	....	1	....	....	....	....	6
Haemorrhage	....	....	....	....	....	....	2	....	....	....	....	....	2
Difficult delivery	....	....	....	....	....	....	....	....	....	1	....	....	1
Atelactasis	1	1	....	....	....	....	....	1	....	....	....	....	3
Injury by forceps at birth, etc.	1	....	1	....	....	2	....	....	....	....	....	....	4
OLD AGE.													
154. Senility	6	6	8	5	4	7	7	5	5	4	7	11	75
AFFECTIONS CAUSED BY EXTERNAL CAUSES.													
159. Suicide by firearms	....	....	....	....	....	....	1	....	....	1	....	....	2
165. Other acute poisonings	1	....	....	....	....	....	....	....	....	....	....	....	1
167. Burns	....	2	....	1	1	....	....	....	2	1	1	1	9
168. Absorption of deleterous gases	....	1	....	....	....	....	....	....	....	....	....	....	1
ASPHYXIA BY ILLUMINATING GAS.	....	....	....	....	....	....	....	....	....	....	....	7	7
Asphyxia (accidental)	1	....	....	....	....	....	....	....	....	....	....	....	1
Suffocation	....	....	....	....	....	....	....	....	....	....	1	....	1
169. Accidental drowning	1	....	....	....	1	....	2	....	1	1	3	1	10
170. Traumatism by firearms	....	....	2	....	....	....	....	....	....	....	....	....	2
171. Traumatism by cutting or piercing instruments	....	....	....	....	....	....	....	....	1	....	....	....	1
172. Traumatism by fall	1	....	....	....	....	....	1	....	....	....	1	....	3
173. Injury by blasting	....	....	....	....	....	1	....	....	....	....	....	....	1
175. Traumatism by other crushings	....	....	....	....	....	....	....	....	....	....	....	....	....
Railway crushings	1	....	1	....	....	....	2	....	....	2	....	....	6
Struck by street car	....	....	....	....	....	....	....	....	....	....	....	1	1
Automobile accident	....	....	....	....	....	....	....	1	2	3	2	....	8
Run over by dray	....	....	....	....	....	....	1	....	....	....	....	....	1
179. Excessive heat, sunstroke	....	....	....	....	....	....	....	1	....	....	....	....	1
182. Homicide by firearms	....	....	....	....	....	....	....	1	....	....	....	....	1
183. Homicide by cutting or piercing instruments	....	....	....	....	....	....	1	....	....	....	....	....	1
184. Homicide by other means	....	....	....	....	....	....	....	1	....	....	....	....	1
185. Fractures, cause not specified	1	....	....	1	....	....	2	....	....	2	1	1	8
ILL-DEFINED DISEASES													
187. Ill-defined organic diseases	....	....	1	....	....	1	....	....	....	....	....	....	2
Ascites	....	....	....	....	....	....	....	....	....	....	1	....	1
188. Sudden death	4	....	1	....	1	2	1	....	....	1	....	2	12
189. Cause not specified	....	....	4	1	2	....	1	1	1	....	....	1	11
Totals	173	141	193	150	162	112	133	101	134	161	146	141	1747
Still-births	11	17	10	20	7	11	12	7	12	16	17	15	155
Total	184	158	203	170	169	123	145	108	146	177	163	156	1902

OTTAWA, November 30th, 1919.

Dr. Lomer, Medical Health Officer, City Hall.

DEAR SIR,—I have the honour to submit the ninth annual report of the "Babies' Health Stations," and "District Nurses," ending October 31st, 1919.

The Depots are as follows: No. 1, 249 Guiges Avenue; No. 2, 7 Irving Avenue; No. 3, 468 Booth Street.

In the summer we had the two extra nurses for the babies. Then in September we assumed the inspection of the Separate Schools, keeping the two extra nurses and engaging three more. At present there is a total staff of nine nurses.

On September 18th, the city was divided into nine sections, each nurse taking a district in which she is responsible for the Separate Schools, Baby work, Absentees, and any other cases found by or referred to her. The nurse spends the forenoons examining the school children. When she finds a case such as defective eyesight, decayed teeth or enlarged tonsils, she reports to that effect, by printed slip, to the parents. In the majority of cases, the mother then takes the child to their family doctor or the hospital and has the child attended to. During even the short period we have been doing this work, we find the results very satisfactory.

It has been found that the infectious diseases common among children are now found out by the nurse when looking up absentees, and promptly reported at the City Hall. This prevents children with such diseases in the homes from attending school and spreading infection.

The nurses find many cases of malnutrition, and help and instruct mothers in its treatment.

We have had a most satisfactory year in our Baby Work. The increase in the number of visits made and the number advised and instructed by the nurses at the stations is shown by the figures submitted, with the lowered mortality list.

We have not given out as many milk tickets this year as formerly. It seems as if people were perhaps better able to purchase milk since prohibition has been in force.

We thank the doctors who have spared us time and attention to carry on the work.

I submit the following statistical report for the year:

Station	Advice by Physician at Station	Advice by Nurse at Station	Nurses' Visits to Homes	First Visits to Homes	Pints of Milk Supplied	Deaths
Guigues Ave ...	564	1,001	5,661	904	1,662	12
Irving Ave.....	380	1,421	6,110	1,150	812	9
Booth St.......	351	1,543	5,328	489	1,812	8
Totals.......	1,295	3,965	17,099	2,543	4,286	29

Cash to the City Hall for barley flour, $49.05.

I have the honour to remain,

Yours faithfully,

M. E. DAVIDSON,

Supervisor.

PETERBOROUGH.

Sanitary Inspector's Report.

To Dr. W. A. McPherson, Medical Officer of Health, City of Peterborough, Ontario.

Dear Sir,—I have the honour to submit my third annual report for your consideration.

I am pleased to report a decided improvement *re* scavenger and garbage complaints. Scavenger complaints would be much less during the year if some of the scavengers were more attentive to their work. I find a number of these earth closets in bad condition and also in bad positions—too close to the neighbour's kitchen. The connections should be made in many cases. Most of the tenants that I come in touch with are willing to pay more rent to have the proper accommodations in houses. I find in my visits in yards and lanes that sometimes garbage and ashes are mixed, as people have not got proper receptacles. This gives the garbage men and the incinerator men extra work.

The following list of complaints will give some idea of the work being done by the Sanitory Inspector:

Garbage complaints	175	Cow byres inspected	146
Diphtheria cases	13	Inspected all laundries and bakeries.	
Scarlet fever cases	21	Inspected eating houses and hotels..	19
Measles cases	3	Inspected factories	3
Smallpox cases	10	Inspected all fruit and fish stores.	
Inspections of houses—cellars	85	Milk tests	347
Inspections of lanes and yards	230	Scavenger complaints	249
Inspections of stables	65	Stores inspected	20
Dead animals	17	Brock Street rink inspected and found in filthy condition.	
Cesspools	4		
Houses disinfected	4	Inspected diseased meat	2
Notices served	168	Inverlea Park inspected—dressing rooms in dirty condition.	
Inspected slaughter-houses	30		
Notices to remove hen coops	25	Removing dead fish out of Little Lake.	

I would also like to say a few words of appreciation of the assistance given me by Mr. F. W. Miller, Relief Officer, both in the office and in the investigation of complaints.

All of which is respectfully submitted.

C. S. Stapleton,
Sanitary Inspector.

Peterborough, Ontario, December 1st, 1919.

To the Chairman and Members of the Peterborough Board of Health.

Gentlemen,—I beg to submit for your consideration the annual report of the Medical Officer of Health.

Infectious Diseases.

The following communicable diseases have been present during the year: Diphtheria, scarlet fever, measles, smallpox, whooping cough, chicken-pox, typhoid fever and infantile paralysis. Of these the following have been reported:

Smallpox	26
Diphtheria	21
Scarlet fever	19
Measles	3
Typhoid fever	1
Infantile paralysis	1

The most serious has been diphtheria, from which there have been four deaths, and in this connection I would like to draw attention to the following points:

The importance of early recognition by the doctors of all such cases and the necessity of taking steps to clear up all doubtful cases by a laboratory examination.

The importance of early treatment by antitoxin of those affected and those who have been exposed, both young and old.

The necessity for inspection of the school children for any signs of inflamed nose or throat.

The need of a laboratory in the city where microscopic examinations can be made and an early diagnosis given.

With regard to the smallpox that prevails at the present time, I would say that a great many of the cases are very mild in type, and for that reason in some cases they have been treated as chicken-pox. On this account the disease is difficult to control and is found in all parts of the city, and will in all probability continue through the winter unless the citizens co-operate by insisting on vaccination in the family and in their business concerns. Recent vaccination is an absolute preventative and the only known preventative. Those who will not avail themselves of the protection must put up with the consequences if they should be unfortunate enough to develop it or be exposed to it.

THE ISOLATION HOSPITAL.

Owing to the fact that the more severe infectious diseases have been present throughout the year the hospital has seldom been closed, and on account of two frequently occurring together, it has necessitated the employment of an extra nurse.

The use af the shacks for smallpox has further increased the expenditure, as they have been in almost constant use since June.

The matter of painting and repairs to the main building and the altering and equipping of the shacks so as to make them more serviceable for hot and cold weather and from other standpoints should be taken up at an early date. Also the advisability of securing another assistant in nursing work might be considered.

THE SANITARY WORK.

For various reasons this work is not being carried on as thoroughly as I hope it will be in the coming season. The magnitude of the work is not realized by any except those who are actively engaged in it. It means the examination of all residential premises, with enquiries and reports regarding the general sanitary condition of the buildings and grounds, the sewage disposal, water supply, habitable condition of the house, number of occupants, sickness during past year, animals kept and condition of their quarters. This means a systematic house-to-house visit by the Sanitary Inspector so that the Health authorities will have a first-hand knowledge of the actual condition in all the various details that prevail in every part of the city.

Then comes the systematic examination of the public quarters for the protection of the patrons and employees. This means the hotels, restaurants, boarding and lodging houses, the stores where food or refreshments are manufactured or sold. This includes the bake-shops, butcher shops, fish stores, confectionery stores, ice-cream booths, milk dairies, the market, etc., to see that food is produced, handled, kept and delivered in such a way as not to be a menace to health. This means a thorough inspection to ensure the health and cleanliness of those who handle the food, the cleanliness of the premises, the freedom from anything that would tend to communicate disease to the consumer.

Then there are the factories, the offices and stores, to see that the employees are working under such hygienic conditions as will be most conducive to good health.

To this is added the following up of complaints of all kinds, the abatement of nuisances, the supervision of the work of scavengers or night-soil men, of the garbage collection and the incinerator.

To anyone who is in the slightest conversant with such work it will be evident that this work cannot be carried on by one Sanitary Inspector who has other multifarious duties.

This part of the work is drawn to your attention in order to secure your co-operation in the proper organization of a health department with sufficient help and funds to do it properly. This year practically all that has been possible was the following up of complaints and the inspection of small sections in connection with such complaints.

The danger of the filthy, improperly kept outside closet, and of the uncovered manure piles and the unsanitary surroundings in connection with the keeping of horses, cows, pigs, chickens and other animals, has been recognized for a long time, and it is the intention to see that the innocent are protected from the careless owner by insisting in a very firm manner that the city by-laws and the Health Act be complied with.

THE MILK SUPPLY.

One of the most important problems of this Board is to see that pure milk is being supplied to children of the city. This is the most common article in a child's diet list, and as it is the best medium for the growth and development of disease-producing germs, it therefore results that unless proper precautions are taken it may become a great menace to the health of the children of the community. On this account the premises of the milk producers are being regularly visited in order to ensure that the milk by-law is being complied with. However, on account of the number of farms from which milk is obtained it has become a big task to inspect them sufficiently often to secure proper results. We are further handicapped by the fact that in some cases the milk producers are on a rented farm, and it is impossible to secure all the conditions deemed necessary.

In my opinion, therefore, the only safe procedure to take is to insist on the pasteurizing and bottling of all milk sold in the city, and I would advise that this Board recommend to the Council a by-law to this effect.

Before closing I would like to draw your attention very forcibly to the duties and powers given this Board by the Provincial Health Act and the city by-laws. The health of the citizens of Peterborough is in our hands, and all ways and means by which this may be maintained and improved should receive our careful consideration and wholehearted support.

Every illness is a financial loss to the family and to the community, and every death is a serious financial loss to the community and, to the family, a loss that cannot be estimated in the coin of the realm. Every time a sickness or death occurs, it would be quite fitting that the Board of Health should individually ask himself the question, "Have I any responsibility for this loss?—could this have been prevented by the adoption of proper health measures?"

The importance of these preventative measures is being recognized by those who have been studying health problems, and already a great deal of progress has been made. This was forcibly demonstrated during the late war by the absence of typhoid, para-typhoid, smallpox, tetanus, as a result of the preventative measures that had been taken by the military authorities.

Throughout the country Boards of Health are organizing their forces for the prevention of disease. Some of the main points that are being considered are:

Greater attention to the sanitation of the community in general and the individual premises in particular.
Pure water supply.
Proper sewage disposal plant.
Thorough supervision of the food supply.
Pure air supply by—
    1. Prevention of pollution by dust, smoke and foul odour.
    2. Creation of open-air spaces, parks, playgrounds, etc.
Encouraging healthy exercises—summer and winter—and providing facilities for same, for all ages and classes.
Dissemination of knowledge of the laws of health to all, and especially to those having the care of children.
Instruction to expectant mothers.
Care of the babes.
Inspection of children under school age.
Medical inspection of schools.
Segregation of those who are infected with communicable diseases or who are mentally defective and the application of proper treatment to them and contacts.
Taking active measures to remedy any defects found in those who are inspected.
Active support of all organizations whose aim is the improvement of the health of the citizens.

In this connection we should begin next year an active campaign for a clean city. Support the Water Commissioners in their endeavour for the installation of a proper purification plant, and support the Council in their efforts to secure a proper sewage disposal plant.We should further support the Council in the line of action they are taking for the securing of grounds for recreation and sports, for the securing of playgrounds and facilities for swimming and skating. We should encourage the Health Association in their endeavours to care for those who would otherwise receive no help, and we should lend a hand to the new organization which is planning to care for the babes and children.

In conclusion I would like to recommend that the City should take steps to organize the Health Department on a different basis. The time has come when there should be a full-time Health Officer with an assistant. Under his supervision could be carried on all the work that is being carried on by the various organizations in the city. By this means both economy and efficiency can be secured.

I have the honour to be, Gentlemen,

Your obedient servant,

W. A. McPherson, M.D.
Medical Officer of Health.

PORT ARTHUR.

PORT ARTHUR, ONT., December 1st, 1919.

E. J. B. Dobie, Esq., Chairman, Board of Health, City.

DEAR SIRS,—I beg to submit my annual report for the year ending October 31st, 1919. At the beginning of the year, the outbreak of Spanish Influenza was raging throughout the world. We had a large number of cases and deaths, although, compared with other cities, we were exceedingly fortunate. We established a strict quarantine. closing all public places of amusement, also churches and schools. Whether this had any effect on staying the spread of the disease it would be hard to say. However, we got off comparatively lightly. We have also had a number of cases of scarlet fever, in fact the largest number of cases for some years. I am pleased to be able to state that most were of a very mild character. This is one of the chief reasons why it is difficult to control the spread of the disease. The patient may not be very ill, and a physician not being called, the case may not be reported unless the school nurse should discover it. Another reason for the possible spread of the disease is the short period of quarantine, (six weeks), in a simple case, while the danger of spreading the infection often lasts from eight to twelve weeks. The Medical Officer of Health has the power to continue the quarantine even after six weeks, if he is satisfied there is still danger, but you cannot always be sure; the patient is apparently better, the family is anxious and pressing to have the card removed. Thus the disease is spread.

We have also had a number of cases of chickenpox, but all of a very mild type. We do not quarantine, only placard for this disease. We treated one hundred and twenty-three patients in the Isolation Hospital during the year, although a number of these were admitted in September and October, 1918. Mrs. Flanagan, the matron in charge, has been very faithful in the discharge of her duties and has only had one death to report for the year. It has been necessary to employ an extra nurse several times for night duty.

I have examined twelve insane persons in the gaol for the Police Magistrate, attended seventeen charity patients in the city hospitals, and twenty-nine in my office also twelve in the Isolation Hospital. I have had a number of patients in the children's shelter. I visit all cases of contagious diseases which are placarded as well as all tubercular reported.

I have visited the schools. The school nurse reports to me all children suffering from diseases who have no medical attendant, and I visit these cases if they are not able to come to my office. If they are able to engage a physician I advise them to do so, if not, I attend them myself. I also have to investigate all complaints coming in over the phone *re* persons breaking quarantine, nuisances, troubles about not having water and sewer connections, in fact everything affecting the public health comes under my department.

I have been called to the police station to attend to patients for the police. I also visited a number of patients in the two fire stations. I examined some accident cases for the Public Utilities Commission.

With the inspector I visited the following dairies:—

Ben Thomas	McIntyre Township
S. Kuiskilla	" "
E. Bailey	Oliver Road
R. Lewtas	" "
E. Ross	" "
F. Laurin & Sons	Dawson Road
F. Paquette	" "
Canadian Dairy	Pearl Street

We made special report forms so as to keep a complete record of each dairy, as to the number of cattle, style of building, condition in which the buildings and utensils are kept and all complaints against the dairy. The record of the milk samples collected for examination, the water supply, etc. We have found that the dairymen generally do their best to live up to requirements. In two cases we had to give warnings. The Sanitary Inspector collects samples of milk from the wagons of the different dealers, as well as from other persons who sell milk and only keep one or two cows. These samples are examined in my office. These samples are collected about twice a week in the summer months, and about once a week in the winter. I have inspected the dry docks, pulp mill, grain elevators, the fish docks, restaurants, hotels, boarding houses, yards, and lanes. I attended the annual meeting of the Officers of Health in Toronto last May. There was a large attendance and many valuable papers on public health questions discussed.

We have had visits from Dr. George and Mr. White, Provincial Health officials from N. Bay. Dr. Woodhouse, the District Officer of Health, returned from Overseas this Fall, and has again taken charge of the district.

I wish to draw your attention to the fact that all moneys collected for licenses as restaurants, dairies, butcher shops, and laundries are credited to the Police Department as they issue the licenses, although we do the inspecting, and they have to have our permit before obtaining a license. In Fort William these moneys are credited to the Board of Health. I think we should get credit for our Board.

Dr. C. N. Laurie,
M.O.H.

VITAL STATISTICS.

Estimated population	15,500
Births	477
Deaths	243

These deaths include fourteen (14) persons who died in the surrounding townships, but whose deaths were registered in Port Arthur.

Deaths.

One year and under	70
One to two years	5
Two to three years	3
Three to five years	12
Five to ten years	18
Ten to twenty years	17
Twenty to thirty years	30
Thirty to fifty years	46
Over fifty years	42
Total	243

Death rate per thousand	14.77
Death rate per thousand (including stillborn)	12.64
Birth rate per thousand	30.77

Births.

Year.	
1916	512
1917	539
1918	538
1919	477

Thus, there have been sixty-one births less this year than in 1918.

Stillborn.

Year.	
1916	39
1917	53
1918	39
1919	47
Total	178

Deaths among children under two years of age for the past four years	337
Deaths registered as stillborn during these four years	178
Deaths from all other causes excepting stillborn	159

This is an alarming state and should be investigated. Under the head of stillborn are included premature births.

Contagious Cases Placarded.

	Flu	Dip.	Scarlet	Measles	Typhoid	Tub.	C. Pox	W. C.
November	350	....	2	1	....	2	7	....
December	155	....	5	1	....	....	4	....
January	61	....	14	1	....	....	3	....
February	6	1	7	1	....	....	4	....
March	10	....	6	....	....	....	....	....
April	2	2	8	....	....	....	....	....
May	2	....	11	....	....	....	....	....
June	....	....	4	3	....	....	....	....
July	....	....	10	3	....	1	....	....
August	....	1	4	....	3	1	2	1
September	....	....	8	1	1	....	3	....
October	1	....	17	1	....	1	15	....
Totals	587	4	96	12	4	5	38	1
Deaths	40	1	3	0	0	17	0	0

Contagious Diseases.

Scarlet Fever.

Year.	Cases.	Deaths.
1915	62	0
1916	2	0
1917	8	0
1918	66	3
1919	115	3

Diphtheria.

Year.	Cases.	Deaths.
1915	3	0
1916	4	0
1917	5	0
1918	16	1
1919	4	1

Measles.

Year.	Cases.	Deaths.
1915	6	0
1916	64	0
1917	318	0
1918	6	0
1919	12	0

Whooping Cough.

Year.	Cases.	Deaths.
1915	6	0
1916	44	2
1917	6	2
1918	58	3
1919	1	0

Infantile Paralysis.

Year.	Cases.	Deaths.
1916	2	1
1917	0	0
1918	0	0
1919	0	0

Typhoid.

Year.	Cases.	Deaths.
1915	13	1
1916	11	3
1917	2	1
1918	5	1
1919	4	0

Mumps.

Year.	Cases.	Deaths.
1918	93	0
1919	10	0

Spanish Flu.

Year.	Cases.	Deaths.
1918	183	25
1919	587	40

We have distributed the following quantities of antitoxin and vaccine received from the Provincial Board of Health.

Diphtheria antitoxin	Two dozen, 5,000 units.
Diphtheria antitoxin	One dozen, 10,000 units.
Diphtheria antitoxin	3½ dozen, 2,000 units.
Tetanus antitoxin	One dozen.
Cerebro spinal meningitis serum	One dozen.
Typhoid vaccine	One-half dozen.
Silver nitrate solution	Four dozen.
Smallpox vaccine	One dozen.
Whooping cough vaccine	One dozen.
Diphtheria swabs	Ten swabs
Widal slides	Five slides.

Our expenditure was somewhat heavier this year than last. You must remember though that our Board of Health year dates from November 1st, consequently, the two months of November and December which were under the 1918 Board come into this report. During those two months we had considerable sickness and expenditure on account of the epidemic of flu and scarlet fever. Our printing account alone at that time for carrying health notices in the *Daily News*, amounted to a large item. I would also draw your attention to the cost of the pump at the Isolation Hospital for the year. We are having constant trouble with it and it seems impossible at present to do anything else. The only solution is to have the city water mains extended to the hospital or else move the hospital to another site. Last year I suggested to the Council, to build a new Isolation Hospital in the grounds of the General Hospital, in which case the hospital could be heated from the General Hospital plant. The meals could be served from the General Hospital, and we would then have access to the city water and sewer system. The two buildings could be connected by a covered passage which would be heated and through which the meals would be passed. We would have our own hospital staff as at present, and there would be little danger, if any, in regard to spreading the diseases. I recommend that a resolution be sent from the Board to the 1920 Council requesting that the building of a new hospital on the site suggested be considered. I am quite aware that it would require from about fifty to sixty thousand dollars to erect a new building but the present one is quite out of date, and aside from the want of water and sewer connections, it has no conveniences of any kind. It is a question the city has to consider sooner or later.

FINANCIAL STATEMENT FOR THE YEAR.

Salaries	$8,669 00
Hospital account	4,157 63
Extra nurses	388 00
Coal	538 70
Pump	398 87
Dry goods, supplies, etc.	279 63
Drugs, etc.	311 55
Public utilities	383 72
General	119 10
Team, etc.	233 27
Daily News, printing	570 00
Hardware	152 80
Hospital supplies	111 07
Total	$16,313 42

CREDITS.

Collected from outside patients	$282 50
Collected from Board of Education, *re* nurse's salary	375 00
Collected from Separate School Board	75 00
Total	$732 50
Total net cost of department	$15,580 92

I remain,

Yours respectfully,

DR. C. N. LAURIE,

Medical Officer of Health.

SARNIA.

SARNIA, ONT., January 29, 1920.

The Chairman and Members, Board of Health, Sarnia, Ont.

GENTLEMEN,—I have the honour to submit to you the report of the sanitary conditions of the City of Sarnia for the year ending December 31, 1919.

Since the abatement of the influenza epidemic of last winter, which started in October and remained with us until March of 1919, we have had a remarkable year, so far as the visitation of any of the communicable diseases, as you will see from the Health Inspector's Annual Report, viz.: Diphtheria, 15 cases; scarlet fever, 7 cases; measles, 10 cases; typhoid fever, 15 cases; tubercular, 1 case; smallpox, no case; influenza, 202 cases. Besides, we have had a number of cases of chickenpox. In all the above quarantined cases the homes were properly fumigated.

SPANISH INFLUENZA.

During the epidemic of influenza of 1918 and 1919 there were reported 2,272 cases and 55 deaths, being 4.25 per cent. per thousand. This disease was not among the quarantineable diseases, and many cases of a milder nature were not included in the above numbers, so that it would be safe in estimating the number at about 4,000 cases. I am of the opinion that the action taken by the Board of Health in distributing the Golden Rules to the homes, and the closing of the public and the separate schools, collegiate institute, churches, theatres, poolrooms, dance halls, and all public meetings, resulted in lessening the spread of this dreadful disease. We are again being threatened with another epidemic of influenza, and I have had the sanitary inspector call up all the physicians of the city as to present conditions of influenza, and I am proud to say that all reports, up to date, are very encouraging, and few cases have been designated influenza, although many cases of so-called la grippe are quite prevalent. I have also interested the ladies of the Red Cross Society, who are undertaking Social Service work, by getting them organized, and we had a meeting last Friday, and are preparing a register for volunteer nurses who might be needed if the disease should be prevalent amongst us again. The public owes very much to Miss Barrie, the Imperial Order of the Daughters of the Empire, the V.A.D. nurses, and the press, for the valuable services given during the past epidemic.

The city has practically been free from the usual communicable diseases this year, there being only 7 cases of scarlet fever and 10 cases of measles reported, as compared with 46 cases of scarlet fever and 86 cases of measles in 1918. Diphtheria claimed 15 cases, as compared with 11 cases in 1918. In this disease I would strongly urge physicians to use antitoxin in large doses at the earliest suspicion of diphtheria. The Provincial Board issues free antitoxin from the Connaught Laboratories, and the same is kept in stock in the city, so that no excuse can be made by the delay in sending swabs to confirm the diagnosis, and, as no harm results from the administration of antitoxin, it should be used in all suspicious cases.

SMALLPOX.

Since the epidemic in the early part of 1918, when we had 45 cases, there has been no case reported to our local Board of Health. There has been a severe epidemic in Toronto, and many other places, through carriers, have also been visited by the same disease. We all know how the Federal Board of Health of the United States has taken precaution on account of this Toronto epidemic. Colonel Guest and myself, on the second day of the quarantine, put in force by the Federal Board of the United States, went to Port Huron, and had an interview with Dr. Kesl, of Port Huron, over the 'phone, and, not being able to have a joint conference, we were not able to get much satisfaction from our visit. We regret the inconvenience our citizens have been put to, and the stringent methods adopted by the officials on account of the epidemic many miles from our city.

MILK SUPPLY.

Our milk supply has been carefully looked after by our sanitary inspector, who has made periodical tests from those who deliver milk to our citizens. In the early spring of 1919 I had a "questionnaire" printed, and instructed the veterinary surgeon, on his annual visit to all the farms who supplied milk to the different dairymen, and had the various questions answered, so that a copy was left with each farmer and one copy remained in the book for our information, and I would say from the answers that all the questions were answered very satisfactorily. During the year a number of the dairymen have sold their businesses to the Sarnia Creamery, and a large bulk of the milk supplied to the city is now pasteurized. In order to get the best out of the questionnaire, I called all the dairymen to a general meeting in the Police Court room, and, with a large gathering of the milk producers being present, I gave them a general talk on "cleanliness," and I feel that a great deal of good will come from such co-operation on the part of the farmers.

WATER SUPPLY.

In my last report I stated that the City Council succeeded in getting a by-law passed by a majority vote of the people for $55,000, and that, with plans and specifications approved, they have completed their new method of supply to the basin at Point Edward, and we have a supply of fresh water equal to any water supply in Canada.

SEWERAGE.

During the year that has passed, notwithstanding that our city is well provided with sewers and outlets, we advocated a proper sewerage system in the part of the city south of the Tunnel Cut, and I am glad to say that this portion of the city has been properly taken care of, and besides many other streets have had sewers constructed during the last year.

SCHOOL NURSE.

The school nurse, Miss Barrie, has been doing good work amongst the school children by carefully looking after their health, and reporting such cases to parents for their co-operation in looking after their welfare. She has just placed in my hands a complete list of all children regarding vaccination, as follows: Public schools, not vaccinated 153, not successfully vaccinated 117; collegiate institute, not vaccinated 22, not successfully vaccinated 15. This combined total, 307, represents about 15 per cent. not vaccinated. We desire to state that we believe that no city in Ontario has a better record of successful vaccination than the City of Sarnia.

GARBAGE.

Since last report the city has purchased a few acres of land and erected an incinerator for the proper disposal of our garbage. The dump ground on the London Road has been taken exception to by the Council of the Township of Sarnia, and now we feel that this nuisance has been abated, and from this on we have a proper place to dispose of all the refuse and garbage that may be collected by the collectors appointed by the City Council. We still want some improvement in the manner the garbage is placed on our streets for collection, and the use of proper receptacles and methods of placing garbage in these receptacles should be enforced.

ISOLATION HOSPITAL.

Time and again the question of an isolation hospital has been brought to your attention, and no special effort has been made to secure a building for the care of those unfortunate ones who contract a communicable disease. I would earnestly request that immediate steps be taken to request the City Council for at least $25,000, for the erection of a suitable building, so that we can properly isolate all cases that are required to be quarantined. Now that the Hospital Trust are deeding the present General Hospital to the city, and they, no doubt, intend to submit a by-law to the citizens to vote on at an early date, it would be a move in the right direction to have a sufficient sum placed along with the amount required for the hospital extension and nurses' home, with a central heating plant for all buildings.

DEATHS AND BIRTHS.

During 1919 there have been registered 272 deaths, being 12 in excess of 1918, ana, with a population of 13,000, the death rate per thousand would be 20.75. Taking into account that various deaths occur at the Sarnia General Hospital of persons belonging to outside places, there is charged against the city in making out the statistics one death rate occurring from influenza and complications, amounting to about 3.5 per thousand of population. This is considerably lower than many other places in Ontario. The births for 1919 were 252, being 40 less than the number registered in 1918.

RECOMMENDATIONS FOR THE YEAR 1920.

(1) That immediate steps be taken to have a suitable isolation building for the care of all communicable diseases.

(2) That a veterinary be again employed to inspect all cows and barns where milk or cream is being supplied to our citizens or creamery, and that permits be granted only to those who comply with veterinary inspection. That he examine all slaughterhouses, and see that they comply with the health regulations.

(3) That we endorse the principle of having all milk pasteurized, and that the Board advise the establishment of a city pasteurized milk dairy.

(4) That we submit an amended milk by-law to the City Council for its endorsement.

(5) That the city streets be cleaned by "white wings," as they were last year.

All of which is respectfully submitted by

(Signed) WM. LOGIE, M.D.,
Medical Officer of Health.

SAULT STE. MARIE.

SAULT STE. MARIE, December 15th, 1919.

To the Mayor and Aldermen of the City of Sault Ste. Marie.

GENTLEMEN,—As required by the Public Health Act, I beg to submit my report of the sanitary conditions of the city for the year 1919.

INFECTIOUS DISEASES.

1. *Typhoid fever.* During the year there have been eight cases of this disease. Six cases came from camps outside the city, and two cases belonged to the city. A nurse and orderly contracted the disease in attendance upon a patient with the disease, and they are now both ill. Chlorinization of the water has practically banished typhoid from our midst, so far as the city is concerned. The Water and Light Commission delivers a safe product to the citizens, who, instead of finding fault with the water they are getting, should be thankful that they are protected against what in former years was our most prevalent and fatal disease.
2. *Scarlet fever.* Six cases; no deaths.
3. *Diphtheria.* Ten cases; one death.
4. *Measles.* No cases.
5. *Whooping-cough.* Several cases in the city at present.

6. *Tuberculosis.* There were six deaths from this disease. This is the smallest number of deaths from tuberculosis for a good many years.

7. *Influenza.* This disease was prevalent during the early months of the year. There are no cases yet this year.

8. *Smallpox.* One mild case at present in the city. The man came from a camp near Nairn Centre, and was in the city a few days before taking ill. We may look for cases of this disease any time. It is prevalent in many centres in the province, and we can hardly escape cases coming in as the present one did. The only safety is in vaccination. We have a large unprotected population here, and the only safe thing to do is for all who have not been vaccinated within the last seven years to have it done at once.

Dairies and Milk Supply.

The dairies were inspected twice during the year by the sanitary inspector and members of the Board of Health. In many cases improvements in the buildings were insisted upon, and in one instance the producer was forbidden to sell milk until his premises were put in a sanitary condition.

Boarding-Houses and Restaurants.

These were regularly inspected by the sanitary inspector, and have been kept in very good condition during the year.

The Board of Health.

Under the chairmanship of Mr. G. J. Saunders this has been an active organization during the year, and has done good work in guarding the public health.

During the year 264 permits were issued from the Engineer's office for connections to the sanitary sewers.

All of which is respectfully submitted.

I have the honour to be,

Your obedient servant,

(Signed) A. S. McCaig,

Medical Officer of Health.

STRATFORD.

Stratford, Ont., December 15, 1919.

To the Chairman and Members of the Local Board of Health.

Gentlemen,—It is again my privilege to submit to you the annual report of the sanitary condition of the city for the past year. For about thirty-five years I have had that honour, and during that time no adverse criticism has been brought forward for want of ability or neglect of duty.

At the beginning of the year we were visited with a serious epidemic of the "flu." or influenza. Your Board did all in its power to cope with its ravages. We were heartily and ably assisted by the citizens, the different societies and aids, organizations and institutions. The General Hospital, Loretto Convent and the Salvation Army threw open their doors for admission of the afflicted. Professional and private nurses volunteered at the risk of their own health, to whom much praise should be given. The "toll" of the gallant nurses was not a few and the memory of their gallantry and self-sacrifice should not soon be forgotten.

Statistics.

There were in all 287 births, 165 marriages, and 182 deaths, as per City Clerk Lan's report. Basing our population at eighteen thousand, the percentage of deaths would be 10 per thousand, which is extremely low. Deducting the 46 cases of "flu pneumonia," which were unavoidable, the percentage of deaths would be reduced to

7.55 per thousand. This is a most remarkable record, and worthy of note. In part it is probably due to the vigilance exerted over the so-called preventable diseases. Of these, there were a comparatively small number of cases reported. There were:

	Deaths.
42 cases of diphtheria	2
10 cases of scarlatina	..
3 cases of measles	..
27 cases of smallpox	..

No case of typhoid was reported during the year.

During the summer there were weeks when the city was entirely free from any contagious disease.

On September 25th we had an official visit from Dr. McNally, District Medical Officer, and his report of the sanitary condition of the city was in part as follows:—

"Sanitary conditions are continuing to improve, and the city is and has been for some months practically free from communicable diseases; the exception being a case of measles, which was introduced from outside, and not reported until some members of the family were infected; this condition was discovered by the school nurse, who reported her suspicions to the sanitary inspector, who promptly investigated and had the family quarantined, though not before one room of the school had been exposed.

"The new artesian wells are now supplying all the city water, and as a result not a case of typhoid in the city during the past two years, so the sanitary inspector reports.

"Outside toilets are reduced to about 200, and these mostly in outlying districts.

"Manure is generally being taken care of as provided by the regulations, though there are a few exceptions yet to be corrected.

"The Sanitary Inspector's report states that the city has been thoroughly inspected as to sanitary conditions several times during the year, and notices sent to all parties not observing the regulations. Have inspected restaurants, butcher shops, groceries, bakeshops, fruit stores, and all places where food for human consumption is dealt out, and usually found them in satisfactory condition.

"The abolishing of outside vaults has not been so extensively done this year, owing to the cost of modern fixtures having advanced so much in price that owners of houses were in many cases unable to meet the increased expenditure. However, sixty-six houses have been modernized during the year.

"I inspected the livery and feed stables several times, and found them clean and sanitary. Gave eleven permits for new stables. I found, on inspection, that a large number of wells in the city contained impure water, and condemned them. I sent samples of city water to Toronto for analysis several times during the summer. They were always reported free from impurities.

"I also inspected the laundries frequently and found that some of the owners needed instruction in cleanliness. They are doing better. Found on inspection that some of the tenement houses needed to be made modern. Gave the owners notices to comply with the sanitary regulations.

"A large number of complaints were sent in during the year, and many of them were not well founded. In every case I looked into them, and wherever there was a real grievance I had same adjusted. Had twenty-eight dead dogs removed from streets where they had been thrown. Inspected a number of henhouses and pigpens where not up to the mark. Had the City Engineer go with me on several inspections where sewer gas was reported to be escaping from manholes and storm sewers. Had them flushed wherever a nuisance was found to exist.

"Building Inspector Dixon accompanied me to a number of houses where there was inefficient plumbing, and gave me great assistance in enforcing the changes necessary to put such houses in sanitary condition. Have had some difficulty in getting householders to get the necessary garbage cans. We hope that in the near future all householders will supply themselves with garbage and ash cans, according to city by-law.

"In making our official tests of the milk supply, we found it all above the standard as to richness. In testing with our apparatus, we can only test as to quantity of fat, other solids and water, and, while this is perfect, as far as it goes, it does not make any analysis as to disease germs or any other adulteration. In inspecting the dairies I found the stables in first-class condition, the water supply good, and the cooling of the milk done in places separate from the stables."

We are now experiencing an outbreak of smallpox. The disease in general is of a mild type, which makes it much harder to control. The origin of the disease was traced to a patient coming from Toronto, who was not free from communication on arrival. There was no report sent to your officers until about twenty cases existed.

Consequently, we had more difficulty in getting the disease under control. At first it was limited to Shakespeare and Romeo Ward schools, but eventually has spread to other parts of the city. When the disease was diagnosed, every precaution was taken to prevent its spread. The municipality joined with us by enforcing the law that every child attending school should produce a certificate of vaccination who had not been vaccinated within four years. There are a few who have not complied with the law, but your Board is determined that the law shall be fully carried out. At present the total number of patients under treatment is 9; number of patients discharged, 38; number of houses at present under quarantine, 9; the total number of cases which have been reported during the present outbreak, 47.

Dr. McNally, District Medical Officer, lent us much valuable assistance through his experience and counsel.

Respectfully submitted,

J. T. Robertson, *M.O.H.*

ST. CATHARINES.

Report of Medical Officer of Health.

To Chairman and Members of Local Board of Health, St. Catharines, Ont.

Gentlemen,—Please find submitted my first report as M.O.H., for statistical year ending November 15th, 1919.

This city has been very free from contagious diseases, and, as will be seen from the secretary's report, the death rate from all diseases has been very low. Particularly is this true in regard to the epidemic of Spanish Influenza.

The report of the sanitary inspector attached shows 1,487 inspections; 321 dead animals collected and buried, and 55 houses fumigated. The inspector has done excellent work, and is always ready and willing to assist me in my work.

The water supply has been plentiful and good. Weekly analysis have been made and it is very gratifying that there were no cases of typhoid fever during the year. This, to a very great extent is the result of conscientious duty of the waterworks superintendent, Mr. A. Milne.

For the first time a regular system of medical school inspection has been undertaken in this city, and many defects of school children have been reported to the parents.

The meetings of the local Board of Health have been held regularly each month, and I am pleased to state that all members have been present at these meetings, and all have taken a lively interest in the work.

A light motor ambulance presented to the city by the Canadian Red Cross Society is being repaired and will be used for isolation hospital patients.

Tenders for a large motor ambulance have been received, and the contract will be awarded at the next meeting of the Board.

The Complaint Department, instituted some months ago, has been used freely by the citizens, and our department has tried to investigate each case within 24 hours.

Garbage collection in the city has been very good, but many citizens do not use the metal tightly-covered receptacles that the by-law demands. The use of these should be strictly enforced as this will, to a great extent, do away with the fly nuisance.

The milk supply has improved very much in quality since monthly reports have been published in the papers. Owing, however, to the ice shortage this summer, it has been impossible to keep the temperature as low as it should be. In spite of this there were only five deaths from cholera infantum.

With the sanitary inspector, I have visited all parts of the city, particularly the outlying parts from which we receive most of our complaints. During the spring many cellars were flooded, but as most of the districts are now being sewered this nuisance will be done away with.

Last month a city nurse was appointed and already she has done excellent work. She has made a house to house visit in the poorer sections of the city, and many cases of illness and want have been reported by her.

Sixteen cases were admitted to the Isolation Hospital, with recovery in all cases but one. The matron has given excellent satisfaction and has done remarkably good work in a building so poorly planned for infectious disease. The grounds and hospital are kept in perfect condition, but many repairs are urgently needed for the building. When the General and Marine Hospital is enlarged, provision should be made for isolation wards.

Many cases of infectious and venereal disease are not reported by the physicians. It is also noted that in reporting the cause of death, indefinite terms are used which make it very hard to prepare a report. To offset this, the small booklet with official nomenclature has been sent to each physician.

A full stock of Provincial Board of Health vaccines, antitoxins, etc., are now kept at the City Hall and G. and M. Hospital, and are available, free of charge, for the physicians, day and night.

Five miles of sewers from eight inches to forty-two inches have been put down, and 200 house connections put in during the year. The City Engineer's Department has helped in every way to better the sanitation, and this co-operation is greatly appreciated.

All of which is respectfully submitted.

D. V. Currey,
Medical Officer of Health.

St. Catharines, November 15th, 1919.

To Chairman and Members of Board of Health.

Gentlemen,—Following is a report of work done by the Sanitary Inspector for year ending November 15th, 1919.

Total number of inspections	1,487
Inspection of privy vaults	85
“ unsanitary houses and premises	105
“ overcrowded houses	6
“ laundries	24
“ Restaurants	35
“ market	46
“ junk shops	33
“ water on lots	11
“ water in cellars	14
“ offensive odor from sewers	17
“ chickens on premises	18
“ hogs on premises	26
“ accumulation of manure	10
“ stables	14
“ garbage dumps	9
“ dairies	54
“ garbage complaints	16
“ regarding relief wanted	92
“ regarding relief supplied	75
Notices served to provide manure receptacles	23
Notices served on rubbish and refuse	4
Notices served to dispose of outside toilets	44
Number of animals collected and buried	321
Number of unfounded complaints	7

Quarantine and Disinfection.

Number of houses placarded for contagious diseases	50
“ “ fumigated	55
“ “ visited	20
“ cases of Spanish Influenza reported	2,089
“ calls on doctors for same	75
“ milk samples tested for butter fat, temperature and sediment	298

All of which is respectfully submitted.

Richard Bonham,
Sanitary Inspector.

St. Catharines, November 15th, 1919.

To the Chairman and Members of the Local Board of Health.

Gentlemen,—I herewith submit my annual report from November 15th, 1918, to November 15th, 1919, inclusive.

Attached to this report is a list of deaths and their causes during the year, also a summary of their ages at the time of death.

Influenza-pneumonia being the largest cause and was during the epidemic last spring.

I also submit a list of diseases classed as contagious, as reported by the medical practitioners of the city.

Taking out influenza, pneumonia and tuberculosis there was only four deaths from contagious diseases.

The population, as returned by the Assessment Commissioner for 1919 is 19,195.

The sewer system has been further extended and a large number of sewer connections made, and nearly all the city now has a sewer system which helps to improve the health of the city.

All of which is respectfully submitted.

J. ALBERT PAY,
Secretary, Local Board of Health.

BIRTHS REPORTED FROM NOVEMBER 15TH, 1918, TO NOVEMBER 15TH, 1919.

Males, 289; females, 256—Total, 545. An increase of 26 over 1918.
Marriages, 213. An increase of 54 over 1918.
Deaths, 318. A decrease of 17 over 1918.

CONTAGIOUS DISEASES REPORTED.

	Cases.	Deaths.
Diphtheria	38	2
Scarlet fever	9	0
Mumps	0	0
Chickenpox	16	0
Measles	1	0
Typhoid fever	0	0
Tuberculosis	15	18
Whooping cough	3	2
Smallpox	2	0
Influenza-pneumonia	2,080	74

DISEASES CAUSING DEATH, FROM NOVEMBER 15TH, 1918, TO NOVEMBER 15TH, 1919.

Appendicitis	1	Heart disease	9
Apoplexy	14	Hyperthyroidism	1
Abscess	2	Hæmorrhage	10
Arterio sclerosis	2	Hypertroply	2
Angina pectoris	1	Influenza	5
Accident	2	Intestinal obstruction	1
Ardosis	1	Indigestion	3
Arpleyxia	1	Intussusception	1
Atelectasis	1	Inanition	2
Asthma	1	Jaundice	1
Bright's disease	1	Mental aberration	1
Burns	1	Malnutrition	5
Bronchitis	3	Marasmus	3
Cardiac failure	2	Meningitis	3
Cystitis	1	Mastoiditis	1
Convulsions	4	Nephritis	7
Carcinoma	8	Oedema of lungs	1
Cardiac dropsy	2	Old age	3
Cancer	3	Pneumonia	74
Cholera infantum	5	Poison	2
Cirrhosis of liver	2	Peritonitis	6
Diphtheria	2	Paralysis	1
Dilation of heart	2	Pleurisy	1
Dropsy	3	Renal insufficieny	1
Drowned	3	Spinal compression	1
Diabetes	1	Septic poison	1
Endocarditis	1	Still born	36
Enteritis	2	Senile decay	5
Eclampsia	1	Senile dementia	1
Embolism	1	Spinal meningitis	1
Exhaustion	1	Septicæmia	5
Fracture of hip	1	Toxæmia	2
Fracture of skull	3	Tuberculosis	18
Fistula	1	Tetany	1
Fracture of Femur	1	Ulcer of stomach	1
Gangrene	1	Uraemia	2
Goitre	1	Whooping cough	2
Heart failure	14		
		Total	318

Ages at Time of Death.

Still and premature	34
From birth to 6 months	23
" 6 months to 1 year	7
" 1 year to 2 years	9
" 2 " 5 "	7
" 5 " 10 "	5
" 10 " 15 "	4
" 15 " 20 "	5
" 20 " 25 "	18
" 25 " 30 "	16
" 30 " 35 "	21
" 35 " 40 "	22
" 40 " 45 "	9
" 45 " 50 "	12
" 50 " 55 "	19
" 55 " 60 "	15
" 60 " 65 "	17
" 65 " 70 "	23
" 70 " 75 "	15
" 75 " 80 "	16
" 80 " 85 "	12
" 85 " 90 "	6
" 90 " 95 "	1
" 95 " 100 "	2
Total	318

ST. THOMAS.

St. Thomas, December 23rd, 1919.

To the Local Board of Health.

Gentlemen,—As required by section 23 of the Public Health Act, I have prepared the following report of the work done by the Board during the year 1919.

There were twelve regular and six special meetings held during the year.

At the request of the Board, the septic tank at the west end of Walnut street, which caused annoyance to the residents in that neighborhood, has been improved by the City Council and is now working satisfactorily.

Permission to construct septic tanks on private premises was granted to residents of outlying parts of the city where sewers were not available, on the condition that whenever sewers are laid in those parts the premises will be connected with them and the septic tanks abolished.

Accounts due for care in the Isolation Hospital have been collected to the amount of $325.00.

There have been two cases cared for in the scarlet fever hospital; total number of days' care, 36. Twelve cases in diphtheria hospital; total number of days' care, 140. Two cases were admitted to the smallpox hospital on December 2nd, which are not discharged.

The communicable diseases reported during the year were as follows:—

Diphtheria, 67 and 5 deaths; smallpox, 4; sleeping sickness, 1 and 1 death; spinal meningitis (cerebro), 2 cases and 2 deaths; scarlet fever, 21; measles, 2.

Total number of cases, 98, and 8 deaths.

All of which is respectfully submitted.

W. J. Shaw,
Secretary of Board of Health.

TORONTO.

Monthly Report of the Local Board of Health.

The Board submit herewith, for the information of the Council, the following report of the Medical Officer of Health for the month of January:

Reconstruction, repatriation, rehabilitation, are the watch words of the day, and in both the mental and moral realms are the most outstanding need of the new period upon which we are entering, and which, if the highest degree of efficiency is to be accomplished, calls for the closet co-operation with all worthy constructive movements, to lend our best efforts towards making life more sane, safe and satisfying for our brave boys who have come through the most extreme test that the defenders of any nation have ever been called upon to face. They have fought the good fight. They have kept the faith. What future has our nation or our municipality laid up for them?

Obviously a prerequisite of efficient rehabilitation is the improving of environment that will, as nearly as possible, safeguard the homes from the jeopardizing influences of the invisible foes of the race. Our boys will return with vastly different ideals as a consequence of their associations with the peoples of other nations. They will return as men with vision. They have been called upon to face tremendous issues and to make quick decisions. Consequently, they will view with a critical eye the organizing powers, the activities and the preparedness of those responsible for the defence of their homes against these invisible foes which have been responsible for more deaths in our Dominion in the past four years than the Armageddon through which they have passed.

I arranged recently with General Gunn to address our organization of Public Health Nurses, in order that he might ascertain in what way the Board of Health and the Department of Health could be of service when the men were discharged and returned to civil life. After spending some time in going into the details of our organization, General Gunn was convinced that the preparedness which stood us in good stead and enabled us to come through in a more gratifying way than any other city of our size or larger on the continent our conflict with the recent influenza epidemic would also stand us in good stead in co-operating with the Department of Militia and Defence in their repatriation under General Gunn.

It must be apparent that the nurses in the various districts throughout the city to which our boys will be coming, if they have not yet arrived, and to which they will return after their honorable discharge from the army, will be a material aid in nursing them back, as General Gunn has expressed it, and weaving them in once more to the municipal fabric. This will embrace a careful study of the psychology of the returned soldier.

Nations have all recognized, fortunately, and are recognizing more than ever before the necessity for exceptional activity in the safeguarding of human life and the increasing of human efficiency, the building up of a fitter race, the developing of our real man power.

We have heard a great deal about patriotism. Are we consistent when we say we are patriotic, and we want to be patriotic? Patriotism is rather a broad and embracing term, and we should be careful lest that, by breaking one of the least of the requirements, we may lay ourselves open to the accusation of being guilty of all. Patriotism is defined as "Love of, and devotion to, one's country; the spirit that, originating in love of country, promotes to obedience to its laws, to the support and defence of its existence, rights and institutions and to the promotion of its welfare." The promotion of the welfare of any country or of any nation is obviously, therefore, a prerequisite to true patriotism.

Probably one of the most outstanding of the many addresses during the latter part of the war, delivered by the Right Hon. David Lloyd George, Prime Minister of Great Britain, is that recently delivered, which has been termed his "Health Speech," and which should be "read, marked and inwardly digested" by every man and woman in the British Empire. Lloyd George's speech, in part, is as follows:—

To be Ready for Peace.

"As soon as the unseen hand casts the rainbow of peace on the skies, we must be ready. And to be ready is summarized in one counsel. We must profit by the lessons of the war.

"The first lesson it has taught us is the immense importance of maintaining the solidarity of the Nation. The British Empire has rendered a service to humanity, the magnitude of which will appear greater and greater as this generation recedes into the past. It helped stop the onrush of barbarism that was sweeping over Europe. It has held the unfenced highways of the world free for the armies of freedom to pass and repass. To permit such an organization to fall to pieces after the war would be a crime against civiliation.

"The next great lesson of the war is that if the State, if Britain, is to be thoroughly equipped to face any emergency of either peace or war, the State must take a more constant and more intelligent interest in the health and fitness of the people. If the Empire is to be equal to this task, the men and women who make up the Empire must be equal to theirs. How does Britain stand in the light of that test. We have done great things in this war. We could have accomplished greater, if this country had been in a sound condition. War, like sickness, lays bare the weakness of the constitution. What has been ours? Let us talk quite frankly.

"We have had a ministry of national service, set up in this country, and since then we have had the most carefully compiled statistics as to the health of the people, certainly between the ages of 18 and 42. That is the age of fitness and the age of strength. What has it revealed?

"You have three grades—your A1, your B2, and your C3—and all I can tell you is this, that the results of these examinations are sufficiently startling—I do not mind using the ward appalling. I hardly dare to tell you what it is in some parts of Lancashire. The number of B2 and C3 men throughout the kingdom is prodigious, so much so that we have half suspected the doctors. But there was a re-examination, which did not make very much difference, and I apologize to the doctors here—for the first time.

HUMAN MATERIAL WASTED.

"What does it mean? When you look at it, it means this—that we have used our human material in this country prodigally, foolishly, cruelly. I asked the Minister of National Service how many men we could have put into the fighting ranks if the health of the country had been properly looked after, and I was staggered at the reply. It was a considered reply. He said at least one million. If we had only had that number, this war would have long ago ended triumphantly for us.

"But here we are, combing out essential industries—there are questions as to whether you should put miners back or keep them in the army (a few tens of thousands); whether you should put a few thousands more into munition works. And yet you had one million men who, if the State had taken proper care of the fitness of the people, would have been available for the war. And the vigor and strength of the workers of this country have been unsatisfactory, even in pursuits where all conditions are favorable to the development of a fine physique—agriculture. The results in agriculture have been almost as disappointing as in almost any other industry—a thoroughly healthy occupation of that kind.

"Everywhere a virile race has been wasted by neglect and want of thought for it. It is a danger to the State and to the Empire.

"And unless this lesson is learned, the war will have been in vain. Our schooling has cost us dear, but if we make the best use of it, I believe it will be worth it all in the end, even in the saving of human life.

"Care for the health of the people is the secret of national efficiency. It is the secret of national recuperation. With our machinery we take the greatest care. It is material. The way we look after it, if the steel is defective, through badly-ventilated or ill-constructed furnaces or insufficient fuel. If the machine is inadequately oiled or not looked after or overworked, if repairs are not done in time and done thoroughly—well, your machinery is no use.

"I solemnly warn my fellow countrymen you cannot maintain an A1 empire with a C3 population.

"And man is the most delicately constructed of all machines. It is bad business not to look after the men, the women, and, if I may say so, above all the children.

"Now the most important workshop in this land is the home. And the quality of the steel in the national fabric depends upon the home. If it is unhealthy, ill-equipped, ill-supplied, ill-managed, the quality becomes defective, and it cannot bear the strain.

HEALTH NEEDS OF THE PEOPLE.

"What are the influences that make for the health of the people? The first is the houses in which the people live. You cannot bring up a healthy people in unhealthy homes. Why, even those who rear animals will tell you that. The problem of housing in this country is the most urgent that awaits treatment. We have talked about it, we have played with it for forty, fifty years, but it has never been really taken in hand. It has only been taken in hand in the way an untidy or slovenly housewife takes up the cleaning of her house—just that part where the visitor can see.

"There has been too much of that in our cities. The slums, the bad houses—they are out of sight. That is not the way to deal with the problem which affects the strength of the nation. No government, no party has had the courage to grapple with it in the way a good business man would grapple with some sort of rottenness which he discovered in his business, and which was wasting his assets. He would not trifle with it; he would have the thing thoroughly searched out and put right. That is what ought to be done. It is equally true of the whole field of public life. We have had Acts of Parliament running into hundreds of sections; we have had regulations that would fill a library; we have had the most attractive pictures of model dwellings circulated, and we have had endless authorities. But you cannot plow the waste land with writing paper, you cannot sweep away slums with paint brushes, and you cannot bind the gaping wounds of the people with red tape. That is our first problem.

"The next is this: There ought to be more intelligent organization of the forces which have specially in charge the health of the nation—national, municipal, medical. We have enormous losses to make up. The crippled and wounded must come first; but we must also think of the children who are to fill up the gap in the generation that is to come.

"The State must see that they are built up into a strong, healthy and vigorous people. There is no surer way of strengthening the country than that.

"What more are we to do to improve the life of the people? Wages during the war have been raised, and we must see in the future that labor is requitted with wages that will sustain life and vigor. I am glad to see that in agriculture wages have gone up. There must be healthier conditions in the workshops. Many of them were admirable; many of them tolerable; many not tolerable. Bad health for the nation is bad business for all.

THE NATION'S HOUR.

"There are times in the history of the world when nations take a great leap forward into the light. This is such a time. There is a great river in eastern Europe which, after meandering sluggishly through hundreds of leagues, finding a great barrier in its road, concentrates the whole of its strength to break through—rushes along and then merges into a sunnier land and into more fertile plains. That is the story of the national life of this country, before, during and after the war. It has taken a great rush forward, and when it emerges from the rocks through which its torrents are now struggling, it will deploy into a sunnier and a fairer land.

"The men who endure the discomfort, the terror, the torture in this mighty struggle have not gone through it all to re-establish more firmly in the land, for which they have fought, the dominion of slums; of wages that will not maintain, let alone cheer, life; of confusion and disorganization, which create waste, inefficiency, misery and squalor.

"But to enable the nation to bear the gigantic burden of debt which the war will impose upon it, and the still greater burden of recuperation and reconstruction, we must see that the national resources are developed to the full, and that the State renders all assistance in its power for the attainment of that object. Comfort is the surest preventive of anarchy, the best conditions of production. If abundance is not there, you cannot distribute it. That is an obvious truth which the Bolsheviks seem to have overlooked. The Bolsheviks began with distribution and ended with distribution. Production did not concern them. That is the surest road to national poverty, and it is the Bolshevist method.

"The state must help, the State must promote, the State must encourage production; it must remove hindrances to production; it must insure the confidence and security which is essential to production. There must be no shirking from national organization, national production and national assistance.

STORM SIGNALS APPEAR.

"In my Welsh home, we have an invariable method of ascertaining when the storm is coming. There is a lighthouse behind the western hills. When the weather is fair and settled, you never see its light. But now and again it illumines the darkness, and you then know that the storm is coming. I have been scanning the horizon, and I can see flashes on the sky which indicate to me that there are grave atmospheric disturbances in the social and economic world. In the natural world. you cannot with thinking avert the storm. In the more artificial world of human society, you can, if you take heed in time, avert the hurricane. I give one advice to my countrymen, and I say it solemnly to them—take heed in time. And if you do, we shall enjoy settled weather for the great harvest which is coming when the fierce heat of summer, which is beating upon us in this great war, will be over and past."

The Board submit herewith, for the information of the members of the Council, the following report of the Medical Officer of Health for the month of February:—

One can readily understand how difficult it is for the average lay mind to appreciate the full importance of the various activities of a modern Department of Public Health.

In fact, it is difficult for the part-time health officers in smaller municipalities to attempt to keep pace with advanced thought. However, to-day public health administration is on a ten-fold saner basis than it ever was before. In fact, for years previous to the discovery of the germ origin of disease, administrators of public health were more or less groping in the dark.

In referring to the inability of the lay mind to fully grasp the importance of public health administration, it is interesting to note that, even in this connection, history repeats itself in demonstrating that the exceptions prove the rule. There are most outstanding exceptions in the case of the layman's vision of the possibilities of preventive medicine. One of the first of these was that of Lord Beaconsfield, over three-quarters of a century ago, making the statement in the British House of Commons that "Public health is the foundation on which rests the happiness of the people and the strength of the nation," and that that was why he took the stand that "The first duty of a statesman was the care of the public health." This sentiment, many years later, was practically reiterated by Abraham Lincoln, Gladstone, and the Right Hon. John Burns, and even at a more recent date, when on the 12th of August last, at Manchester, in an address on public health, the Rt. Hon. David Lloyd George said that, in our reconstruction plans for the more efficient safeguarding of the public, health must take precedence of all others.

But, to go further back amongst those of prophetic vision, we find several hundreds of years before Christ that David apparently had a vision of the possibilities of preventive medicine when he said: "Thou shalt not be afraid for the terror by night, nor for the destruction that wasteth at noonday, nor for the pestilence that walketh in darkness." The terror by night— the imaginary dangers of the night air as being one of causes of malaria, when as a matter of fact, the real cause of the transmission of malaria was the mosquito, which, as you are aware, accomplishes its deadly work for the most part at night. The destruction that wasteth at noonday, referring, no doubt, to the wasting diseases of middle life, which, I regret to say, are causing one hundred per cent. more deaths now than they did thirty years ago; and the pestilence that walketh in darkness—venereal diseases, the ravages of which we are only beginning to bring under control.

The modern conception of public health work embraces not only the safeguarding of human life against preventable diseases, but against all diseases, inasmuch as practically all are more or less preventable, but it also embraces the developing of a fitter race, and to this end must necessarily begin with the pre-natal care, followed by the care of the new-born infant, then the care of the child in the pre-school age, the medical care and supervision of the child in the school and the protection of the adult in the various manufactories and industries. So that it is quite obvious that the activities of the modern department of public health are vastly different to those that bent their energies on the abating of nuisances, such as the collection and disposal of garbage, the cleaning of the streets, back lanes and backyards. (These activities are obviously essential in any self-respecting city, but it would be difficult to demonstrate that their neglect would be responsible for one single life); or even to the placarding of houses in which communicable diseases existed.

There are two outstanding activities that all boards of health must embrace; that is, the efficient safeguarding of the water supply and the milk supply. However, it must be borne in mind that there is practically only one water-borne disease—that is typhoid fever—so that when a municipality makes safe its water supply, it has then practically only protected its citizens in a measure against one preventable disease, namely, typhoid fever, and even this disease is, in a large per cent. of cases, traceable to the milk supply of the municipality. With efficient control of the milk supply, the municipality protects itself against occasional epidemics or outbreaks of typhoid fever, scarlet fever, diphtheria, tuberculosis, septic sore throat, and, in fact, to a greater or less degree, practically all of the communicable diseases.

These are the things that a municipality can do for the people. A large proportion of the balance of the activities of safeguarding human life can only be accomplished by the complete and efficient co-operation of the individual citizen. To this end, education is necessarily the watchword. We must teach the people how to live more healthy lives.

Obviously, the place to begin health education is in the schools. Therefore, public health education—education in all branches of hygiene—should constitute a part of the curriculum of every public and private school, high school, college and university.

However, we cannot afford to leave the present generation uneducated and wait for the rising generation to guide them. Hence the necessity of supplying our citizens with sufficient printed matter, of which the most efficient is our Public Health Bulletin.

The value of the co-operation of the public press in educating the people of the City of Toronto as regards the more efficient safeguarding of their health and lives, would be difficult to overestimate, but there are certain people that cannot read and others again that do not read, and that, therefore, require personal instructions, and ofttimes these are the ones that require the instructions most, inasmuch as they are likely to be the most careless, and that being so, they not only jeopardize their own lives and the lives of their families, but also to a greater or less degree, the lives of their neighbors and fellow-citizens.

There is a regrettable lack of knowledge as regards the activities of the public health nurse. The public health nurses are pre-eminently the educators in any department of health. Their entire chain of activities is largely of an educative character—in the instructions they give to the expectant mother; to the mother as regards the care of her new-born infant; to the parents in regard to the care of their children before they enter school; to the homes in which tuberculosis exists, as regards the ways and means of preventing the spread of this disease and to afford the individual affected with it the best possible opportunity for recovery; the instructions to the children as they come in contact with them in the public schools and in their follow-up work in the homes. The nurses entering thousands of homes every week in the city, convey valuable messages along all lines of hygiene and preventive medicine.

SOME OF THE ACTIVITIES OF THE PUBLIC HEALTH NURSE.

Owing to the apparently limited knowledge of the activities of the public health nurse, it would seem advisable to enumerate some of the more important of these activities, in order that we may all have a better grasp of what the public health nurse means in any municipality, especially to those who are unable to obtain their assistance and knowledge through efforts of their own.

Each public health nurse has a little section of the city in which she alone visits the homes where the need of health instruction and assistance is most evident. In many ways she learns of the need of her ministrations. By birth registrations, hospital reports, and the child welfare clinics, she is directed to homes where the problems of caring for a new-born baby is the all-absorbing topic. Child welfare clinics, day nursery inspection, and school medical inspection point out to her the home where the task of keeping the child in health can be made easier by her assistance and advice. The hospital extension work conducted by the public health nurses provides the entry to many homes from which patients have been removed and to which they hope to return. It is the nurse's task to arrange for home conditions that will not favour a relapse. Physicians' notifications of cases of tuberculosis, and applications for free hospital treatment indicate the homes where instruction and assistance are important to protect the members of the household and others from the spread of the infection. Innumerable other means could be mentioned by which the public health nurse learns where she can be of service. Her teaching has the great advantage of an object lesson, for she goes right into the home and shows how necessary things can be done with the facilities available.

She must be not only a teacher and a nurse, but also a trained social worker. Frequently, it is impossible for the people to follow her instructions because of financial stringency or some other social problem. For example, it is fruitless for her to advise the tuberculosis patient to sleep with open windows, if he has insufficient bedding and no fire in the house. In such a situation, she studies the social aspects of the case, refers the need to the proper social agency and sees that adequate action results.

The total number of home visits made by the public health nurses last year was over 123,000.

In these and many other ways, the public health nurses are helping the people to help themselves to health.

PRE-NATAL WORK.

That instruction in the hygiene of the pre-natal state is urgently required is demonstrated by the fact that about thirty per cent. of infant deaths occur in the first month of life, and most of these are due to pre-natal or natal causes. The public health nurses visit such cases where they believe they are needed, and give instruction and advice in reference to bodily care, proper food, dress and housing, and the many steps that should be taken in preparation of the safe arrival of the expected baby. The importance of early and systematic examination by a physician is emphasized, and resort to illegal midwifery is vigorously discouraged.

INFANT AND CHILD WELFARE VISITING.

Each public health nurse is notified of every birth reported from her district. If she considers it advisable, she visits to give friendly advice and instruction in the care of the baby, and to help clear up the social problems that may jeopardize the little one's chances. The importance of breast feeding is one of her most persistent messages. If breast feeding proves to be impossible, the proper preparation and care of the baby's food is her great concern. Suitable clothing, bathing, ventilation, etc., are also to be considered. No less than 36,000 infant welfare visits were made during 1918.

BABIES BORN IN HOSPITAL FREE WARDS.

All babies born in the free wards of the various hospitals are visited and supervised in their homes for one year, and reports are sent monthly to the hospital on their condition and progress. Six hundred and thirty-two such babies came under supervision during 1918.

CHILD WELFARE CLINICS.

The nurse usually recommends that the baby be taken to the nearest Child Welfare Clinic for periodical medical examination. These consultations are conducted in twenty-one neighborhood centres by specially trained volunteer physicians, assisted by the public health nurses. The infants are systematically weighed and measured, and careful record of their progress is kept. An expert medical examination is made and advice is given in the care and feeding of the child. These clinics are not limited to infants, but are available for all children below school age. If remediable physical defects are discovered or the child is found to be suffering from disease, it is referred to its family physician for treatment or, if this is impossible, to the Hospital for Sick Children. In this way, not only is the infant and child mortality materially reduced, but also many physical defects are corrected before they become irreparable and before the child enters school. During 1918, 937 such clinics were held, with a total attendance of 14,414 children. The public health nurses' attendance was 1,409.

CHILDREN'S HOSPITAL EXTENSION WORK.

A great number of infants and children are treated at the Hospital for Sick Children either as bed patients or out-patients. When the child goes home, the doctor gives detailed orders for its feeding and further treatment in its own home. It is the work of the public health nurse to visit and see that the parents understand the doctor's orders, to show them how to give the necessary treatment, prepare the feedings, etc., and to do any surgical dressings that may be necessary. Last year, 961 such cases were referred from the wards of the Children's Hospital and 28,006 from the out-patient department.

SUPERVISION OF LICENSED BABY BOARDING HOMES.

The public health nurses inspect and supervise from 60 to 100 licensed homes in which babies may be boarded. Detailed records are kept of each home and of each baby admitted. This work entailed 2,007 visits last year.

DAY NURSERY INSPECTION.

The public health nurses inspect the children in creches and day nurseries daily, also those in two institutions. The inspection is somewhat similar to that in the schools. Children suspected of communicable diseases are excluded. The parents of sub-normal children are visited, and advice and assistance is given to improve the physical condition of the children. During 1918, the number of such routine inspections was 1,305, and the number of children inspected 49,026.

SCHOOL SERVICE.

School medical service is provided in 92 public and 26 separate schools, the total number of pupils being about 97,000. In connection with school children, the Department has three main functions—to prevent epidemics, to discover remediable physical defects and have them treated, and to develop knowledge and habits of personal hygiene.

Because a doctor costs about twice as much as a nurse, it is the policy of this Department to have the public health nurse do as much of this work as she can, thus making it possible for the public health physician to spend all of his valuable time in doing only those things that demand his special skill and standing.

To prevent epidemics, the essential thing is to remove from the class room those children that have or are developing a communicable disease. In this, the public health nurse plays the chief role. The nurse makes periodical class-room inspections; also the teachers send to the nurse any pupils that they suspect of being ill. Moreover, all children who are absent from school for two or more days are examined by the nurse before they are permitted to re-enter their classes. If, upon examination, the nurse suspects a communicable disease, she immediately sends the child home with instructions to the parent to keep him isolated until a public health physician can visit and decide whether or not her suspicions were justified.

The physician does his visiting after school is closed for the day. Thus he is able to spend his school hours in examining pupils for physical defects that should be remedied. Although the nurse has not the technical training necessary to make this complete physical examination, she is able to relieve the physician of a great deal of the non-technical work involved. She makes the appointment with the parent to be present at the examination, and she gets the pupil to the medical inspection room at the proper time. She does nearly all the recording, makes the sight and hearing tests, weighs and measures the child, if necessary, and follows up the case to urge the parent to act upon the physician's advice. Last year, 17,000 complete physical examinations were made in the schools, and 9,200 children were found with defects other than those of the teeth. In addition, 13,000 special physical examinations were made by the medical staff.

In connection with the dental inspection of school children, the nurse performs a somewhat similar function. During 1918, the number of children given dental examinations was over, 31,000, and the number found with defects of the teeth about 23,000. In addition, the nurse makes all appointments for treatment of puipls' teeth in the dental clinics, obtaining parents' written consent, etc. She is also responsible for getting the proper number of children to the clinics each day for the dentist to operate upon.

In the health education of the children, the lion's share of the work falls to the nurse. Everything that she does in school is a means for pointing a lesson to the child. Besides the opportunity for class-room health talks is being used with increasing success.

Girls' Health Leagues, formerly known as "little mothers' classes," are being conducted in 19 public schools and 6 separate schools. The course consists of eleven lessons and is given to girls from junior fourth classes, selected by the school principals. Demonstrations are given of those features of infant care which are of interest to girls of twelve years of age. The interest has been such that the enrolment has increased since the beginning of the course. The Board of Education has arranged for the nurses to be given instruction in the principles of teaching in preparation for the course.

Emergency work in the schools usually falls upon the nurse. Simple dressings are quite within her scope. The handling of pediculosis, which is surprisingly prevalent, is also entirely in her hands. The number of children excluded from school last year because of unclean heads exceeded 5,000.

TUBERCULOSIS WORK.

The chief problem in tuberculosis work is to teach the patient how to live in such a way as to improve his own chances and not to be a menace to those about him. The public health nurses visit cases of pulmonary diseases, with the permission of the reporting physicians, and give invaluable practical instruction and assistance. Nine thousand one hundred and twenty-three such visits were made last year.

To provide specialist medical diagnosis and treatment for those that cannot afford the service, the Associated Tuberculosis Clinics are operated in the various teaching hospitals, for which clinics the public health nurses supply the nursing and follow-up work. Social service work is also done in connection with the Weston and Gravenhurst Sanitariums. Toronto has succeeded in attaining the lowest tuberculosis death rate of any large city in America.

HOSPITAL SOCIAL SERVICE.

The public health nurses conduct the social service work for all of the public hospitals, excepting the Toronto General. A nurse is stationed in each large hospital, whose chief duty is to interview free patients (in-patients and out-patients) and to have visits made to the homes of those to whom she believes the district nurse can be of service. Frequently there are matters that the nurse can arrange for the patient that will set his mind at ease. Often the home conditions are in some measure responsible for the illness, and the correction of these by the help of the social agencies prevents further trouble. In many cases, treatment can be continued in the home by the aid of the public health nurse which otherwise would require a longer stay in the hospital. Obviously this is one of the nurses' most important activities.

VENEREAL DISEASE NOTIFICATIONS.

The Venereal Disease Act, which recently came into force in Ontario, requires the confidential delivery of certain notices. This is accomplished by the public health nurses, and it is only when the party cannot be found that the assistance of the police is requisitioned.

VISITING ABSENTEE CIVIC EMPLOYEES.

Because of their district organization, the public health nurses are particularly adapted for any municipal service that involves visiting in the homes of the people. The city is divided into six districts (each of which is about as large as the City of Hamilton), each with its own office and superintendent. The various nurses of each district have each a small sub-district, in which they are responsible for all forms of public health nursing, including visiting clinics, school work, etc. (but not bedside work). In view of this arrangement, it is obvious that any visiting necessary can most easily be done as part of the nurses' work.

For this reason, instead of the city employing special industrial visitors to look after its own employees when absent from duty, a public health nurse visits each civic employee reported off duty, reports upon his condition, and obtains a physician's certificate, if possible. If any social work is needed or the nurse can be of assistance, from the health point of view, she welcomes the opportunity to serve. The number of such to civic employees last year was 2,654.

WORKMEN'S COMPENSATION NURSING.

In addition to the above, the public health nurses provide all bedside nursing required under the Workmen's Compensation Act for civic employees injured in the discharge of their duty.

These are the more important of the nurses' duties. There are so many minor tasks that fall to her hands to do that it would be impossible to enumerate them all. The above statement will suffice to convey a fair idea of the many-sided character and the tremendous bulk of the work of the public health nurses.

In fact, the Division of Public Health Nursing has as many activities as a community has health problems to solve. These various duties carry the public health nurse into homes in every section of the city, into public and separate schools, institutions of many kinds, and into the out-patient departments of the hospitals. The plan of organization is efficient, because each public health nurse has a definite area of the city for which she is responsible, because she can bring the families in her district into touch promptly with the necessary medical, nursing or social help.

Those acquainted with public health administration elsewhere appreciate the progress made in simplifying the health problems for other cities.

Some conception of the appreciation of cities on this continent of our organization of public health nursing may be gleaned from the fact that, when the Royal Commission, appointed by the Ontario Government, to look into the various medical activities and medical cults and into the various nursing organizations of the province, visited New York for the purpose of gleaning some further information in regard to public health nursing, they conferred there with those whom they knew were in possession of the most knowledge concerning this activity in public health work, and when it was learned that they had come from Toronto, the Hon. Chief Justice Hodgins told me that they were advised to return again to Toronto, inasmuch as Toronto was leading the continent in public health nursing, and that other cities were watching with intense interest the valuable work being done in this city.

Furthermore, a report of Toronto's plan of organization was recently forwarded from the Columbia University to France, as the ideal system. Columbia University, I may say, was one of the first universities on this continent to establish a course of post-graduate training for nurses in public health work.

Almost every week one or more visitors come to Toronto for the sole purpose of studying our methods of public health nursing and the efficiency of the work.

During the past four years, twenty-eight of our nurses have been released in order to take positions of greater responsibility in other municipalities, particularly of an organizing character. In fact, we have a half dozen requests on file to-day for our nurses to take leading positions elsewhere.

SUMMARY OF WORK DONE DURING THE MONTH OF FEBRUARY.

The following is a brief report of the work done in the various divisions of this Department during the month of February:—

Vital Statistics.

GENERAL MORTALITY.

It is most gratifying to note that, in spite of the influenza, the number of deaths registered in February is 10 less than in the same month of last year, namely, 459, as compared with 469. The general death rate per thousand population per annum was only 11.6, as compared with 12.6.

The favourable weather conditions that we have enjoyed are largely responsible for this otherwise unlooked-for result. The fact that the mortality from pneumonia, which is so frequently associated with influenza, is actually lower than in February of last year, would point to this explanation, as would also the improvement in mortality from tuberculosis, as both of these conditions are especially susceptible to rigorous winter weather.

INFLUENZA.

Although influenza still heads the list of chief causes of death, it has dropped to only 73 deaths in the month, or an average of 2½ per day. The excess of deaths from influenza and pneumonia over last February was only 51.

To the end of January, the death rate in Toronto from influenza and pneumonia was 14.3 per thousand of population per annum. Statistics just received from the United States Public Health Service show that this was more than a fifth less than the average experience in American cities of over 400,000 population. Also, it appears from these figures that Toronto's showing was beaten by only three large cities—Chicago, Milwaukee and St. Louis. Moreover, the Milwaukee statistics quoted were incomplete, and the last Chicago figures were considerably higher than ours and were going up.

The following table shows the epidemic death rates of fifteen cities of over 400,000 population, arranged in order of merit:—

MORTALITY FROM INFLUENZA AND PNEUMONIA FROM THE BEGINNING OF THE EPIDEMIC TO THE END OF JANUARY, 1919.

City.	Deaths.		Death Rate per 1,000 pop. per annum.
Chicago	12,400		12.4
Milwaukee	1,302	(incomplete)	12.4
St. Louis	3,206		13.4
Toronto	2,284		14.3
New York	27,362		14.4
Cincinnati	1,981		14.5
Cleveland	3,918		14.8
Newark	2,348		15.8
Los Angeles	2,969		17.0
Buffalo	2,742		18.8
Boston	5,771		19.1
Washington	2,892		20.8
Pittsburg	4,972		22.9
Baltimore	4,358		23.6
Philadelphia	14,198		24.7
Average (excluding Toronto)			18.4

CHIEF CAUSES OF DEATH.

The following table shows the fifteen chief causes of death in February, with the showing increases and decreases, as compared with the same month of last year:—

DEATHS FROM FIFTEEN CHIEF CAUSES, FEBRUARY, 1919 AND 1918.

	Deaths Registered.		Feb., 1919.	
	Feb., 1919.	Feb., 1918.	Incr.	Decr.
Influenza	73	3	70	..
Pneumonia and broncho-pneumonia	56	75	..	19
Cancer	31	24	7	..
Organic heart diseases	28	49	..	21
Tuberculosis (all forms)	28	33	..	5
Acute communicable diseases	21	25	..	4
Premature birth	18	17	1	..
Congenital debility, marasmus and malformations	17	17	..	..
Violent deaths (including suicide)	16	22	..	6
Cerebral hemorrhage and apoplexy	16	10	6	..
Old age	14	14	..	..
Acute nephritis and bright's disease	9	14	..	5
Other diseases of the respiratory system	6	9	..	3
Bronchitis (acute and chronic)	5	10	..	5
Meningitis	5	6	..	1
Tuberculosis, including deaths of Toronto people in sanitariums outside the city	38	45	..	7

TUBERCULOSIS.

The number of cases of tuberculosis reported during February was 120, as against only 30 in February last year, but the increase is due to the fact that the Department's follow-up to secure notifications, which was discontinued during the influenza outbreak, was able to get in a large number of reports in February that should have arrived earlier. However, there is no doubt but that the epidemic itself has left a great number of people permanently impaired and highly susceptible to tuberculosis, and we may expect higher tuberculosis rates, and, in fact, higher rates from many other conditions, particularly of the degenerative type, for several years to come.

ACUTE COMMUNICABLE DISEASES.

Of the group of acute communicable diseases, diphtheria alone is prominent, with six more deaths than in last February. Typhoid fever, smallpox and measles caused no deaths during the month, and scarlet fever and whooping cough only one death each.

STATISTICS OF CERTAIN ACUTE COMMUNICABLE DISEASES, FEBRUARY, 1919 AND 1918.

	Cases Reported.		Deaths Registered.	
Disease.	Feb., 1919.	Feb., 1918.	Feb., 1919.	Feb., 1918.
Typhoid fever	2	7	0	2
Scarlet fever	127	129	1	4
Diphtheria	165	138	19	13
	(16 carriers)		(14 carriers)	
Smallpox	2	0	0	0
Measles	10	344	0	4
Whooping cough	20	44	1	2
Group total	326	622	21	25

OTHER ACUTE CONTAGIOUS DISEASES, FEBRUARY, 1919 AND 1918.

	Cases Reported.		Deaths Registered.	
Disease.	Feb., 1919.	Feb., 1918.	Feb., 1919.	Feb., 1918.
Chickenpox	83	87	0	0
Mumps	12	87	0	0
Cerebro-spinal meningitis	0	1	0	3
Infantile paralysis	0	0	0	0
Erysipelas	1	7	0	1

INFANT MORTALITY.

The number of deaths of infants under one year of age registered in February was 80, which was six more than in the corresponding month of last year. However, it was actually less than in February of any previous year since 1912 (which is as far back as the record is available).

DEATHS UNDER ONE YEAR IN FEBRUARY, 1912 TO 1919.
(Exclusive of Still-births.)

	Deaths Registered.
February, 1919	80
February, 1918	74
February, 1917	89
February, 1916	89
February, 1915	118
February, 1914	105
February, 1913	124
February, 1912	121

The number of still-births registered shows a remarkable decrease from 56 in February, 1918, to 36 in the month just completed.

STATISTICS OF WORK.

Child Welfare:

	Clinics held.	Physicians.	Nurses.	Patients.
Child welfare clinics	86	67	140	1,333

Day nurseries and homes: Inspections, 108; child inspections, 4,701; dressings and treatments, 430.

Reports on babies discharged from maternity wards, 258.

Home visits by nurses; pre-natal, 217; birth registrations, 442; infant welfare, 1,744; boarded children, 217; children, 1,267.

School Service:	Public.	Separate.
Complete physical examinations	1,994	177
With parent present	853	75
Pupils with notifiable defects other than of teeth	953	142
Number of notifiable defects other than of teeth	1,334	337
Terminations reported	335	35
Dental examinations	3,806	..
Pupils with notifiable defects of teeth	2,230	..
Terminations reported	924	56
Dental clinics: Patients' work completed	551	128

Mental hygiene: Pupils inspected, 1,350; mental examinations, 118; mental defectives found, 15; borderline cases, 21.

Home visits to school children: By physicians, 141; by nurses, 2,306.

TUBERCULOSIS.

Clinics held, 35; physicians, 53; nurses, 49; patients, 412.

Home visits to tuberculosis patients by nurses, 503.

ISOLATION HOSPITALS.

	Admissions.	Discharges.	Deaths.	Av. Daily Population.
Main hospital	203	136	15	..
Measles hospital	1	1	0	..
Smallpox hospital	2	0	0	..
Total	206	137	15	157

Four of these deaths not due to communicable disease.

Hospital Dental Service: Attendance at clinics, 711; cases completed, 92.

PUBLIC HEALTH NURSES.

	Under supervision.		Visits made.	
	Feb., 1919.	Feb., 1918.	Feb., 1919.	Feb., 1918.
Families	5,959	6,966	8,513	8,382
Licensed baby homes	75	97	136	145
Licensed maternity homes	11	..	21	..
Patients	7,589	8,880	9,117	9,615
Tuberculosis	1,245	1,552	503	780
Pre-natal	133	188	217	203
Infants in baby homes	107	118	217	196
Infants birth registrations	..	..	442	327
Infants, other	2,406	3,124	1,744	1,688
Children	1,680	2,002	1,267	1,050
Children, school	..	..	2,306	2,419
Contagion	39	114	433	685
Miscellaneous	1,979	1,782	1,764	1,326
For other civic departments	..	..	205	270
Workmen's compensation	..	..	19	30
Visits of co-operation	..	..	479	641
Patients not found	..	..	940	946
Total visits	..	..	10,536	11,202

LABORATORIES.

EXAMINATIONS.

	Positive.	Negative.	Total.
Diphtheria cultures, city	255	679	934
Diphtheria cultures, Isolation Hospital	272	389	661
Sputum for tuberculosis	24	109	133
Blood for typhoid	5	13	18
Gonorrhoea	37	68	105
Wassermann tests	..	..	87
Water, bacteriological	..	..	201
Sewage, chemical	..	..	74
Sewage, bacterial	..	..	8
Milk, for fat	..	..	519
Milk, for bacteria	..	..	555
Miscellaneous	..	..	4
Total number of samples examined			3,299

Water Supply: Presence of B Coli at John Street has not been demonstrated on any occasion.

AVERAGE COMPOSITION OF MILK SUPPLY.

	Butter-fat.	Total solids.
Wholesale milk samples	3.37	11.94
Retail milk samples	3.30	11.82
Certified milk samples	3.25	11.94
Restaurant milk samples	3.17	11.67

QUARANTINE.

	Total cases.	Removed to hosp.	Houses placarded.	In quarantine March, 1,'19.
Diphtheria	165	117	48	55
Diphtheria carriers	16	..	..	7
Scarlet fever	127	74	47	75
Typhoid fever	2	..	..	0
Measles	10	1	2	5
Chickenpox	83	..	..	33
Whooping cough	20	..	..	13
Mumps	52	..	..	44
Cerebro-spinal meningitis	0	..	..	0
Infantile paralysis	0	..	..	0

Premises disinfected, 271.
Visits by quarantine inspectors, 3,135; average per inspector per day, 14.
Visits by disinfectors, 338; average per disinfector per day, 7.

Food inspection (including meat inspection): Total visits, 2,565.
Confiscation for light weight: Bread, 17 loaves; butter, 41 prints; lard, 7 prints; flour, 62 bags.
Meat inspection: Visits to abattoirs not inspected by Government, 176.
Animals slaughtered in abattoirs under supervision, 4,919.
Condemnations: Carcasses, 20; parts, 77.
Percentage of animals found diseased on post-mortem, 2.56.
Dressed carcasses inspected and approved, but not stamped, 1,649.
Housing and industrial hygiene: Inspections and re-inspections, 2,384.
Housing conditions improved, 145.
Industrial hygiene: Conditions improved, 36; nuisances abated, 259.

The Board submit herewith, for the information of the Council, the following report of the Medical Officer of Health for the month of March:

ESTABLISHMENT OF A FEDERAL MINISTRY OF PUBLIC HEALTH AND WELFARE.

It seems fitting that this Board should go on record as strongly endorsing the Bill recently passed by the Dominion House, for the establishment of a Department of Public Health and Welfare, and for the appointment of a Ministry of Public Health.

MAN POWER CANADA'S GREATEST ASSET.

The Dominion of Canada has invested in agriculture, $4,231,000,000; in railways and canals, $2,123,000,000; in fisheries, $47,143,125; in forestries, $149,266,019. In all, the Dominion has invested $8,285,000,000, and, according to the *Monetary Times*, Canada's national wealth is $19,102,788,125. In all these carefully compiled assets, no mention is made of Canada's man power, no suggestion is made of placing any monetary value on this, the greatest of all national assets, and without which all others would go for naught.

The world's great conflict, from which we have just emerged, has abundantly demonstrated that the destinies of all nations, whether in war or peace, must depend on their brain, bone and brawn. However, the value placed on a human life by our courts is $5,000, so that in our 8,365,000 population, we have an investment of $41,805,000,000, and inasmuch as the development and control of the aforementioned industries are entirely dependent upon our man power, it is surely time that this investment of over $41,000,000,000, our vital assets, should be considered by our Government.

We have our Minister of Agriculture, we have our Minister of Railways and Canals, of Marine and Fisheries, and of Finance, etc., to safeguard these investments, and it is surely most fitting that the Dominion House of Commons should have decided to establish a Ministry of Health and Welfare.

PUBLIC HEALTH ADMINISTRATION NO LONGER AN EXPERIMENT.

Expenditure on Public Health has long passed the experimental stage, so that, within reasonable limitations, any municipality can have as much health and save as many lives as it is willing to pay for. I would not hesitate to go into any municipality in the Dominion, and, having made a careful survey of it, to guarantee that for the expenditure of a given sum of money, I could save a certain number of lives, prevent a certain amount of sickness, and materially improve the general physical fitness of the people. Toronto has cut in half its infant mortality in the past eight years. If the infant mortality for the Dominion were as low as it is in Toronto, there would be over 15,000 fewer infants under one year of age die every year, than do at present. In this same period, Toronto has reduced its general mortality from 14.8 per thousand of population to 11.8 per thousand. If the general mortality throughout the Dominion were reduced to the same as that of Toronto, there would be over 25,000 fewer deaths in the Dominion every year than there are. In the war that we have just passed through, approximately 75,000 of our brave boys paid the extreme penalty, while in the same time 100,000 citizens of the Dominion have died in consequence of our national apathy in neglecting to organize an efficient campaign against the invisible foes of our race. Toronto has demonstrated that lives can be saved and disease controlled, within reasonable limitations, in any municipality, providing it is willing to pay the price. What has been accomplished in Toronto can be accomplished in any and all parts of the Dominion.

Furthermore, for every life saved, or death postponed, there have been at least ten cases of sickness saved, inasmuch as not more than one out of every ten that are sick, die. Therefore, Toronto, through having reduced its mortality from fourteen to eleven per thousand, saves 1,500 lives and prevents 15,000 cases of sickness every year, and if we only value a human life at $500 (our courts value them at $5,000), this means a saving of $750,000. The minimum cost of a case to the family is $10. This means a further saving of $150,000 per year, making a total saving of $900,000.

We do not say this in any spirit of boastfulness, but rather to demonstrate that by an efficient public health organization and administration, the Dominion of Canada can save 25,000 lives and prevent 250,000 cases of sickness every year, which, expressed in dollars and cents, would mean a saving of $14,500,000, and this does not take into consideration what this would mean in improved physical fitness of our entire population. This is no experiment for our Federal Government to launch upon, inasmuch as Toronto has abundantly demonstrated this beyond question.

FACTS TO BE FACED.

The Right Honorable David Lloyd George probably never rendered humanity a greater service than when in Manchester last August, he said: "To be thoroughly equipped to meet any emergency of either peace or war, the State must take a more intelligent and more constant interest in the health and fitness of the people. You cannot maintain an A1 nation with a C3 population."

Several years ago, nations woke up to the fact that it was in the interest of the State that every child should be educated, and, under the Truancy Act, this has been made compulsory, regardless of his physical fitness. An anti-tuberculosis organization in the Republic to the south of us, after making a careful survey, discovered that the State had been spending $2,000,000 a year in educating children who died of tuberculosis before they reached an age when they could make any returns to the State for what they had spent on them. The Dominion of Canada is spending $56,000,000 annually to educate our children, and advisedly so, but is only beginning to recognize that a sound mind can only be developed and maintained to advantage in a sound body; in fact, as Herbert Spencer said: "The first requisite of any individual is that he be a good animal."

The war that we have just passed through has laid bare our physical defects. The results of the medical examinations for the army, between the ages of 18 and 42, have been appallingly startling, and demand immediate action; but not less startling than this have been the revelations in connection with the complete physical examination of children on entering school, where it has been found that approximately fifty per cent. are suffering from physical defects of sufficient importance to require medical attention.

Leadership, Information and Co-ordination.

Unquestionably, the greatest determining factor in our winning the war was the appointing of a generalissimo, by means of whom all activities were centralized under one supreme command. What we need in our organized campaign against the invisible foes is a Foch, a man who can stand firm, when necessary, against the withering fire of criticism and abuse—"Be sure you're right; then go ahead," is as sound advice here to-day as it was when these words fell from the lips of Wellington.

A pre-requisite to all activities in a well-organized educational campaign, a bureau of information, a medical intelligence department, from which unlimited supplies of educational matter may be distributed on all phases of public health work, having previously been translated into a language that can be understood by the man on the street, or the housewife in the humblest home. In this intelligence department, there should be laboratories, with everything necessary for research, and in which they will have access to all information gathered in course of their work by the various public medical officers. It will invite communication from medical men and will seek to gather information from all over the world, and study all questions affecting the health of human beings, and the result of these studies will be disseminated all over the Dominion. It should be frequently possible to see an epidemic in the distance and place out danger signals before it has gained a footing. The people of the Dominion would look to the intelligence department to give warning of the approach of anything of this kind, and to advise as to our counter-offensive. We shall expect it to inform us of the conditions that make for sickness or for health in daily life, and it will be for the Ministry to see that bad conditions are altered, for it is much better and infinitely cheaper to keep people well than to cure them when they are sick.

Obviously the man for this position must be one with vision, determination or purpose, an efficient organizer and administrator, one who is capable of carrying public sentiment with him. He must be able to visualize the future possibility of preventive medicine, embracing, as it does, every activity that is essential for the development of a fitter race, and the lifting of people to a higher level of health, happiness and efficiency. The whole administration must be started on a sound foundation. The efficient solution of the numerous problems of public health is serious enough and of such national importance as to command the ablest and most competent men in medical science that our country can produce, inasmuch as public health is unquestionably the foundation on which rest the happiness of the people and the strength of the nation. The medical profession, as a whole, should constitute the keystone of this structure, if it is to be a national success. The appointment of a Minister of Health has already been endorsed by the Canadian Medical Association, the Canadian Public Health Association, the Ontario Medical Association, the Ontario Medical Council, and the Dominion Medical Council, and the Dominion House can be assured of the support of the profession in the step that it has taken in this direction.

While it is primarily essential that all public health activities of the Dominion be centralized under the Minister of Health, there must also be a great forward advance, and a new conception of what public health of to-day really embraces.

The Board submit herewith, for the information of the Council, the following report of the Medical Officer of Health for the month of April:

Attention is being drawn more than ever before to the dangers of the human carriers of the germs of diseases. These human carriers are the most probable explanation for the recurrence of epidemics in municipalities from time to time and for many outbreaks of communicable diseases that cannot be otherwise accounted for. The recurrence of the epidemic of influenza of 1889, 1890 and 1891 is supposed to be largely due to the carriers of the germs of this disease who had become immuned themselves but continue to carry the organisms.

The duties of departments of health, so far as communicable diseases have been concerned in the past, is for the most part been the control of epidemics. In the line of modern knowledge, it is more ideal that departments of health should see and boards of health should see epidemics in the distance and prepare for their prevention. There are no doubt, hundreds, probably thousands of carriers of the germs of influenza who have become immuned themselves, but are still carrying the germs since the epidemic of last fall and winter, and inasmuch as it is repeatedly demonstrated that the human hands are common sources of the spreading of the germs of communicable diseases, I would urge that the Board endorse the following regulations for the more efficient safeguarding of our bread from human contamination, dust, dirt and flies.

Regulations for the More Efficient Safeguarding of Toronto's Bread Supply.

It is hereby ordered that no person, firm or corporation engaged in the delivering of bread, buns or other bakery products from any wagon or any conveyance, push cart or basket, shall do so without first protecting the same to the satisfaction of the Medical Officer of Health and the Local Board of Health, either by the efficient wrapping of the bread or the protection of the same from the aforesaid contamination, by suitable covers, approved of by the Medical Officer of Health, and the protection of the hand from coming in contact with the same by the wearing of white gloves, cotton or linen, freshly laundered, which must be used for no other purpose other than the handling of bread, buns, or other bakery products and must be kept at all times in the bread basket except when in use by the vendor.

I would recommend that a meeting be called, that the Chairman of Board convene a conference with the representatives of the Bakers' Association and that they appear at the earliest possible date to consider the details of these regulations.

You will rcall that just previous to the outbreak of the war, regulations were framed and approved of by this Board, but for obvious reasons it has not been practicable to enforce them during the period of war.

It must be apparent to this Board that it is imperative that some action be promptly taken in this connection. The Board of Health has, in the past, been dealing for the most part with the weight of bread or the underweight and adulterations. These are matters of fraud and are not directly health problems, but a question of protecting bread from contamination with diseased germs is a most important problem.

Vital Statistics.

General Mortality.

The general death rate in April was a very low one for that time of year, being only 13.0 per 1,000 of population per annum. The similar rate for April, 1918, was 15.6. The actual number of deaths registered, exclusive of still-births, was 554, as against 651.

Chief Causes of Death.

It is most encouraging to note that the outstanding improvement over last year is in deaths from pneumonia. Pneumonia and influenza together last month did not nearly equal pneumonia alone in April, 1918, which was long before the epidemic began.

The next most important improvement over last year is in deaths from acute communicable disease, which show an increase of 12.

The Board submit herewith for the information of the Council the following report of the Medical Officer of Health for the month of May:—

What May We Hope for from the Federal Investigations *re* High Cost of Living?

This is a many sided problem. Many factors have to be considered, and as Professor Irving Fisher, Professor of Political Economy in Yale University, points out, the purchasing power of the dollar is one of the principal causes for labor unrest, not only in the United States but in any other country. The laborer becomes annoyed after he has waged a strike for increased pay, only to find that the cost of living has been increased in just about the same, if not a greater, ratio. His natural tendency then is to become personal, and pin the blame down on some particular person or persons, having obviously become resentful.

It would seem, therefore, that the increased cost of living was for the most part due to the depreciation in value of money. It is true that wages have been increased during the war, but outside of those who have been engaged in munition factories, this is not, in the final analysis, true, inasmuch as wages after all must be measured in bread and butter. It is estimated that, covering the entire field of wage earners in the

United States, wages in money during the past year have advanced thirty-three per cent., while prices have advanced sixty-five per cent.

It must be apparent that until some solution can be found for the real depreciation of money and the corresponding increase in the cost of living, there is bound to be labor unrest.

Since the beginning of the war I think I might conservatively say that the average per capita wealth of this continent has increased from $15.00 to $25.00.

It must be apparent that with the increase in cost of production there must necessarily be an increase in price, and that as wages go up, the cost of production advances, and all that we can hope to do is to see that the high cost of living does not advance out of proportion to the increase in wages.

It would seem, therefore, that even with the increased wages, and if the increase that is being asked for is granted, if the cost of living continues to ascend, it will only mean that the wage earner will be handling a little more money, but at the end of the year will not be any farther, if as far, ahead, as formerly.

While there does not seem to be much hope for any very material decrease in the cost of living for the next year or two, yet there are a few things that are creating unrest among the consumers, and it would seem justly so. For instance, the enormous increase in the price of farm produce, out of all proportion to the increase in the cost of producing the same. In the garden of the Dominion, which is to be found in the Province of Ontario, you can buy a farm to-day for practically the same money that you could have bought it for five years ago, and inasmuch as the average farmer does the great bulk of his own work, one naturally wonders why this enormous increase in the cost of farm produce.

Then there is the possibility of eliminating the middleman, or let us say better, the middlemen. It is difficult enough for the wage earner to meet the profit of the producer and the vendor, without having three or four profits, and sometimes even more, to meet. So that the cost of selling of food and the necessaries of life is sometimes greater than the cost of the production of the same.

As we advance in our good roads, may we not hope to bring the producer and the consumer closer together. Then immediately one sees the possibility, and even the probability of the producer adding on to the price of his article that which the middlemen formerly got, if some check connot be had on this.

One cannot review this problem without being reminded of the findings of the commission appointed by President Wilson to look into the meat trusts in the United States, their findings being that some three or four of the meat combines in the United States for the last three years of the war had made a net profit of fifteen million dollars each. The Commission appointed to make these investigations were met with obstacles deliberately placed in their way by these combines all along the line, even to the falsifying of their books, accounts and so forth.

We cannot hope, therefore, for the entire abatement of the industrial unrest until these clouds are cleared away and the cards are all on the table.

The Board submit herewith, for the information of the members of the Council, the following report of the Medical Officer of Health, for the month of June, viz.:

INDUSTRIAL HYGIENE.

One of the most forceful lessons taught by the recent war was the importance of a more intensive study in regard to industrial medicine, industrial hygiene and industrial diseases.

At the recent meeting of the American Medical Association, it was manifest that all present at the Public Health Section were impressed with the extreme importance of more attention being given by Departments of Health to industrial hygiene, and that industrial hygiene should constitute a part of the general community hygiene.

It is quite obvious that by securing the close co-operation of employers of labor in the various industries it will give Departments of Health an opportunity of getting nearer to these individuals and in that way afford opportunities for personal precautions in all matters pertaining to public health.

The Public Health Service at Washington has arrived at the conclusion that the war lesson shows urgent necessity for Federal Governments to assume leadership in improving the practice of industrial medicine along the following lines:

First—By extending health service in industries to determine the extent and means of correcting health hygiene.

Second—The development of an adequate system of medical and surgical supervision of employees.

Third—The securing of adequate reports of the prevalence of disease amongst employees and sanitary conditions of industrial communities.

Fourth—The establishment of minimum standards of industrial hygiene and prevention of occupational diseases.

Fifth—The improvement of sanitation in industrial communities by co-operating with State and local health authorities and other agencies.

Sixth—Medical and sanitary supervision by the Health Service of industrial establishments owned or operated by the Government.

The conference was surprised to learn the advanced steps taken in Toronto in this connection, and back in 1914, a Division of Industrial Hygiene had been established in connection with the Department. A careful survey had been made of all industries for the purpose of securing better protection of the employees as regards fumes, trade dusts, ventilation, heating and lighting of these industries. The requiring of the installing of satisfactory devices for the control of trade dusts, the improving of the ventilation and heating and lighting of the various industries has been most gratifying in its results, as regards both employer and employees. Many letters of appreciation have been received by the Department from employers of labor in the various industries in connection with this work.

When our survey was made, it was found that in many cases few or no precautions were taken as regards the protection of employees against such hazards as lead and other metal poisoning, and also against fumes and trade dusts. In the various metal trades the industries were found to employ from 25 to 150 men, who handled lead and other metals. In one establishment in the west end of the city, upwards of 200 tons of lead were melted and cast in moulds every day, and at that time none of the melting pots were provided with hoods, nor yet were there any ducts or exhaust fans to carry off fumes, and while little or no precautions were taken in most of the industries at this time, it is gratifying to note that a large proportion of these industries have complied with the requirements of the Department of Health.

Trade dusts were found to be a prolific source of complaint, especially in the shoddy mills throughout the city.

The dangers to workers in these industries can be better understood from the analysis made in the different industries, of the particles per cubic foot found in the air, inside the factories.

In cement rooms it has been found that there were as many of 7,790,000 particles suspended in every cubic foot of air. In flint grinding industries, approximately 900,000. In the pottery industries, 200,000. In carpet, plush and blanket industries, 150,000. Cigar factories, 120,000. Silk industries from 75,000 to 100,000.

The necessity then for the controlling of these trade dusts in the various industries must be apparent.

It will be gratifying to the Board to know that these have all been in a very large measure controlled by the Department in Toronto, satisfactory devices having been installed in most of the industries. However, our experience has led us to conclude that nothing but eternal vigilance will ensure these safeguards in some of our industries.

Dangers of Contamination Through Cigars.

One hears considerable criticism from time to time as regards the manufacturing of cigars and the danger of bacteria in connection therewith. These complaints and criticisms are not without foundation. Where bacteriological examinations have been made of cigars, there have been numbers of bacteria found present, but rarely any of a disease producing character. However, the fact of numerous bacteria being found present in all cases indicates that tobacco is not, as supposed by some, germicidal in character. There is no question about the importance of prohibiting tobacco makers from moistening the ends of cigars with their mouth or tongue, or with fingers moistened with saliva.

It is quite apparent, therefore, that cigar makers should be examined from time to time to determine whether or not they are suffering from a communicable disease.

This habit of moistening the fingers is not by any means limited to cigar makers. One sees this disgusting habit repeatedly in the different stores in picking up paper to wrap articles of diet in, that will not be submitted to heating processes that will destroy the germs before being used for human consumption, for instance, such articles as cooked meats, butter, cheese, etc. Regulations of the Department of Health make this illegal. Please report any instance of this which may come under your notice to the Department and the necessary action will be taken.

Moving Pictures and Eye Sight.

Much has been said in recent years, and many questions have been asked, as regards the possible dangerous effects of moving pictures on the eyesight. This question has been very sanely answered by Dr. W. A. Evans, of Chicago, in which he says: "Most persons who complain that moving pictures cause ocular discomfort have some eye defect.

The moving picture is, in a sense, an instrument for testing the eyes." "The fact," says Dr. Evans, "that ten millions of patrons daily see moving pictures in the United States and that so few complaints of eye discomfort are recorded, is proof that moving pictures do not occasion much eye strain. The seats in moving picture theatres are usually comfortable, the houses are for the most part well ventilated. The line of projection of the pictures is about the same as that of the observers' sight. The nearest seat is more than twenty feet from the screen and the projection and the picture are based upon proper optical principles. All of these features operate to make the moving picture performance unobjectionable rather than otherwise, so far as the sight of the patrons is concerned. The sight mechanism requires 1-12 of a second to record. The moving picture mechanism projects 16 pictures per second on the screen. Each picture is thrown on the screen, comes to a dead halt, is then replaced by the next picture. The light is turned off while the change is being made. If, however, the picture is unsteady, if it moves while the light is on, if it moves faster or slower than 16 pictures per second, the moving picture will be trying to the eyes, but modern picture machines control all these points admirably."

The Board submit herewith, for the information of the members of the Council, the following report of the Medical Officer of Health for the month of July, viz.:

ARE WE COGNIZANT OF OUR TANGIBLE ASSETS?

Do we see ourselves as others see us, or has possession so veiled the splendor that nature has endowed Toronto with, as to have made it too commonplace to be reckoned among our most valuable assets?

Soon after the South African War, a British war correspondent, having spent several days in Toronto, before leaving, was entertained by the Press Club. He had made several tours of investigation during the days he was sojourning in our city, and made valuable observations as regards the setting beauties of Toronto and its environments. In his after-dinner speech at the Press Club, he briefly described his tours of inspection, along the Don, the Humber, Scarboro Cliffs, our Island and the Lake Shore west of Toronto. After describing his impressions, in conclusion he said that it had been his good fortune to visit practically every city of note in the civilized world, and many of them several times, but his observations in connection with Toronto convinced him that if our city was not made one of the most beautiful in the world, it would be the fault of those who were entrusted with re-enforcing nature's magnificient contributions.

As regards the value of the tourist trade as a source of revenue to any community, one only requires to cite such countries as Switzerland, which depends in a large measure for its national income upon the expenditures of its pleasure-seeking visitors. Furthermore, as a means of business advertising, the tourist traffic is not by any means negligible.

HEALTH ATTRACTIONS.

Toronto enjoys many advantages as a summer resort, but strangely enough has not recognized the wonderful assets that they can be made. It is true attention has been drawn to this in a fragmentary way on different occasions, but what we need to develop this asset is organization. The people of the world are beginning to wake up as never before, to the importance of health, and, therefore, when they have amassed sufficient of this world's goods to retire from active commercial pursuits, or when they are seeking a summer resort, if at all intelligent, their first enquiry will be in regard to the health condition of the various resorts that they contemplate visiting; whether or not there is much typhoid in the district; what guarantee there is of the safety of the water supply, or how the milk supply and other foods are safeguarded. A satisfactory answer to these enquiries can be supplied by Toronto's Department of Public Health, and in this respect there is no city on the continent holds out greater encouragement to the tourist or to those seeking a healthful environment in which they may crown a youth of labor with an age of ease.

Toronto's general death rate is 11.8, which is the lowest by considerable, of any city the size of Toronto, or larger, on this continent, and one-quarter less than twenty other cities; with an infant mortality of eighty per one thousand births, which is also the lowest figure of any city on the continent, and with typhoid fever almost negligible.

For the first six months of this year there was only one death from typhoid fever in Toronto. If conditions continue for the next six months as they have in the past, Toronto will have the lowest typhoid rate of any city on this continent.

The tuberculosis death rate in Toronto is approximately 100 per 100,000 of population, while the average city the size of Toronto on this continent has a death rate of from 150 to 400 per 100,000, and these figures for Toronto include citizens of Toronto who die in the various sanitoria in the Province, but whose homes are in Toronto.

It is obvious, then, that the Board of Health and the Department of Health have done their part to make it possible for Toronto to become a summer resort of the first order.

SCENIC ADVANTAGES.

Toronto, by the end of another five years, will have had expended on its water front, harbor improvements, new union station and viaducts, approximately thirty million dollars. Five times that expenditure, yes, ten times that expenditure, could not produce the beauties that nature has supplied Toronto with in its various ravines. With all these assets properly conserved, coupled with that most valuable asset, Toronto's Island, this city, from a scenic standpoint, would stand second to no other city in the world.

The streets in the residential part of Toronto are so well planted out that a view of the city from an elevation gives one the impression of a great city planted in a forest. Few of us really appreciate the value of these trees distributed as they are throughout the city.

CLIMATIC ADVANTAGES.

The summer climate of Toronto is particularly attractive. Here, again, nature has come to our assistance. Sir Frederick Stupart, Director of the Meteorological Service for Canada, in an article on the climate of Toronto, published some few years ago, said: "One of the outstanding features of Toronto's summer is the fact that cool, rainy days are of rare occurrence, the rainfall occurring in showers and thunder showers, while whole days of bright sunshine are very numerous. In fact, from the middle of June until the end of August, one may almost count on full days, or at least part of every day, of sunshine."

Furthermore, Toronto is the gateway of the Highlands of Ontario, which has for years been the great mecca for our neighbors to the south, particularly those south of the Mason and Dixon line. But here again our Observatory reports reveal the fact that Toronto enjoys even more favorable summer weather in June, July and August, when we have an average of 791 hours of bright sunshine, and an average temperature of 65.7, which means that we have, through these three summer months, 7 per cent. more hours of bright sunshine, and an average temperature 1 degree cooler than even Lake Simcoe and the Parry Sound district.

CANADIAN NATIONAL EXHIBITION.

Amongst the various attractions that Toronto affords for summer tourists, must be mentioned the world's greatest annual exhibition. The Exhibition Association has certainly done its share to advertise Toronto and bring tourists to our doors. Those coming here to spend the summer can end up by visiting the Exhibition before they return to their homes.

ARE WE YET FULLY AWAKE?

Apparently Toronto is still slumbering as regards this valuable asset. What magnificent sites for summer hotels we have on Wells Hill, Toronto Island, the Lake Shore—hotels of such a character as would attract tourists, and yet there is apparently no concerted action.

May we not hope that the Harbor Commission and the proposed Parks Commission may take this into their serious consideration?

APPOINTMENTS.

The Board have approved of the following appointments and submit the same for confirmation of Council, viz.:

(1) That Miss J. M. Walker, Miss Ruth Hanna and Miss M. R. Quigley be appointed Public Health Nurses at the regular salary of $1,200, they having completed their probationary period.

(2) That Miss Florence Emory be appointed Supervisor of Public School Nursing at a salary of $1,400 per annum, being the amount of her present salary, to take the place of Miss E. J. Jamieson, resigned.

(3) That Miss Annie M. Connor be appointed District Superintendent succeeding Miss Emory, at a salary of $1,400 per annum, being an advance of $200 over the amount now being paid her as a Public Health Nurse.

APPOINTMENT OF NURSES WITH SPECIAL QUALIFICATIONS.

The Board have approved of the appointments embodied in the appended communication of the Medical Officer of Health, and submit the same for confirmation of Council:

In view of the Venereal Disease Act, which was put into force last year, there is an ever-increasing demand for special services in the follow-up work in the homes, in order that the Department may meet the demands made upon them by the profession generally in this connection.

The time has, therefore, come when it is absolutely essential that this work be supervised by a nurse who has been specially trained for the purpose. I would, therefore, recommend that Miss Frances E. Brown, who has spent some three years overseas, be appointed, at a salary of $1,400 per year, as special supervisor of this work.

Also in connection with the mental hygiene and the mentally defectives, a survey is being made of all of the public schools in Toronto by Dr. Clarke and Dr. Hincks, for the purpose of determining the number of abnormal children in our schools. This will mean a very decided increase of follow-up work, and will require special skill and training in order that the supervision may be efficient.

I would, therefore, recommend that Miss Emma B. B. Clarke be appointed to take charge of the mental hygiene work of the Department, at a salary of $1,400.

I understand that through the irregularities in the nursing service during the year that there will be sufficient funds to cover these salaries, and it would, therefore, not mean an overdraft so far as the Department is concerned. The work, as must be apparent to you, is imperative, and of such a character as to demand our immediate attention.

The Board submit herewith for the information of the members of the Council the following Report of the Medical Officer of Health for the month of August, viz.:—

THE SMOKE NUISANCE AND ITS RELATION TO PUBLIC HEALTH.

How long are we going to tolerate the disgraceful contamination of the atmosphere of our city by smoke? Some five or six years ago I brought this matter to the attention of the Board, and for years investigations have been made by scientists in regard to the influence of smoke in the production of disease. This more particularly applies to the respiratory diseases such as tuberculosis, pneumonia, bronchitis, bronco-pneumonia, etc. We are approaching the time of year when these diseases are always most prevalent. Pneumonia is one of the most devastating diseases with which we have to deal. It has unfortunately been on the increase for many years, and no efforts thus far put forth by Departments of Health seem to have had any material influence on its control. The increase for years has been approximately ten per cent.

Attention has recently been drawn to the influence of city smoke on the increase of disease. Various scientific investigators throughout the world have been making careful study of the relation of smoke to tuberculosis and pneumonia, particularly, and have pointed out that there has been a steady increase in pneumonia in proportion to the increase in manufactories and commerce, and that the increase is much more marked in cities than in rural districts. This, they explain as being due to the increased contamination of the air by smoke.

Since 1875 the death rate of infants from pneumonia has increased 600 per cent. There is a very noticeable difference in the death rate from pneumonia in parts of cities where air contamination by smoke is slight and in the industrial districts where the contamination is much greater.

Outstanding among the valuable investigations along this line are those made by Dr. White, Professor of Medicine in the University of Pittsburg, and his colleagues. They made these investigations in an endeavour to ascertain the cause of the very high death rate from pneumonia and the virulent character of the cases that were treated in the hospital wards of that city. The city was divided into wards of densely laden, moderately laden, and comparatively no smoke areas. This was done in such a way as to practically rule out any influence of poverty, race and congestion. So striking was the correspondence between the pneumonia death rate and the smoke density that they were convinced that smoke plays a very important role in the severity of this disease.

A professor of Leeds University recently made the statement that 140,000 tons of soot are deposited annually in the City of London; also that the smoke cloud cuts off from 40 to 50 per cent. of that city's sunshine. It is estimated that smoke deprives London and Pittsburg of almost one-half of their possible sunlight.

The injurious effects of smoke, so far as public health is concerned, is not only in the irritating effects on the mucous membrane of the respiratory tract, but also the cutting out of such a large percentage of natural light. Furthermore, it compels people in the more congested and more densely contaminated districts to keep their windows closed in order to avoid the destruction of inside property by the various corroding substances contained in the smoke. The following is an analysis of smoke contents, made by Professor Rosenau, of Harvard University:

Carbon	39.0
Hydro-carbon	12.3
Organic bases—containing such poisonous substances as methane and pyridyns	2.0
Sulphuric acid	4.3
Hydro-chloric acid	1.4
Ammonia	1.4
Metallic iron and magnetic oxide of iron	2.6
Mineral matter, chiefly silica and Ferric oxide	31.2
Water	5.8

The people of Toronto, like many other municipalities, have been long suffering and have tolerated these conditions for many years, but now that electrical energy is available, and soon will be available in practically unlimited supplies, through the Ontario Hydro-Electric System, there is no longer any justification for permitting conditions of this kind to exist that have been proved to be disastrous to public health.

The ruling of the United States Supreme Court has been that in all matters affecting public health, the interests of the masses must always be considered as against individual interests.

The Property Commissioner endeavours to carry out rigidly the Smoke By-law so far as Toronto is concerned, yet why should the industries be allowed to pour forth their black smoke for even five or six minutes at a time. However, the greatest offenders are probably our railway companies. Trains passing to and fro and shunting trains along our water front and in various places within the city limits, throw out volumes of black smoke which makes our city look anything but inviting as one approaches it from the water. One almost wonders how it is possible to maintain health in such a contaminated atmosphere, with clouds of smoke of greater or less density constantly hanging over our city.

New York City and other cities have practically eliminated this nuisance, insisting on electric power on all trains entering the city. Railroads are required to have exchange depots several miles outside the city limits, where the engines are removed and motor engines are attached.

In the interests of the masses, surely British justice can be enforced as well in Toronto as it can be in New York City. If we have not sufficient legislative power to control these matters at present, I would urge that immediate steps be taken to secure the necessary power to enforce the installation of electrical energy in our industries as well as by railways, and thereby remove this disgraceful nuisance which is a menace to public health.

The Board submit herewith, for the information of the members of the Council, the following report of the Medical Officer of Health for the month of September last, viz.:—

The Value of Cold Storage.

On order of the Board, I interviewed the Federal authorities in Ottawa, *re* Cold Storage, and the necessity for framing and enforcing regulations governing cold storage. While there, I was assured that regulations were before the Cabinet, and they were hopeful of their being dealt with at an early date.

After my interview, I was more than ever convinced of the necessity for bending our energies on educating the public in order to as rapidly as possible break down the unwarranted public prejudice against cold storage and cold storage foods. All the blame that has been placed on cold storage and condemnations of cold storage foods can be easily explained, and could all be for the most part overcome by efficient regulations giving municipalities entire control over their cold storage plants.

One of the most potent factors in the present social unrest is the high cost of living, and the most potent factor in the high cost of living is under-production. Unfortunately, the influence of supply and demand as regards the price of foods has been underestimated.

Let us consider then, for a moment, the influence of cold storage and in doing so, we must carefully consider what cold storage means, and thereby hope to eradicate some of the prejudices that have arisen as a result of the lamentable abuse of this, one of the greatest blessings of the human race. By the means of cold storage we are able to store and preserve in a wholesome condition the surplus perishable foods of the producing months of the year, so as to ensure an efficient supply for the nonproductive periods. Cold storage is the only natural preservative that we possess for these perishable articles of nutrition, adding nothing to and taking nothing away. The primary functions of the cold storage plant is to prevent deterioration of perishable foods. By means of cold storage and cold storage cars for transportation, we are able to enjoy tropical fruits at all seasons of the year.

Let it be distinctly understood that cold storage does not deteriorate food, either as regards its nutritive value or its wholesomeness, provided, however, that the food is absolutely fresh when placed in cold storage, and that a proper temperature and humidity is constantly maintained. The secret of maintaining these foods in a normal condition is early chilling and the prompt placing of them in cold storage plants.

Economic Value of Cold Storage.

The American Public Health Association has a special committee appointed to make investigations annually in regard to cold storage and its relation to Public Health. Special scientific work has been done along this line since the outbreak of war, inasmuch as the necessity for safeguarding our foods and the preventing of leakages by decomposition and deterioration has been forced upon us. According to reports from the Food Research Laboratories of the United States Department of Agriculture, the United States and Canada have been losing in eggs alone from seventy-five to one hundred million dollars worth every year. Since the outbreak of war, investigations have been made in regard to other perishable foods, and it is estimated that between twenty and thirty per cent. of perishables decay on the farms before they can be sold. If local cold storage plants were accessible under proper government control and supervision, this leakage could be in a large measure prevented. At least 25 per cent. of the perishable foods which arrive on the wholesale and retail market is hauled to the dump piles or to the incinerators because it is found to be unfit for human consumption.

In one year the New York Board of Health condemned and destroyed 6,500,000 lbs. of fruit and 2,500,000 lbs. of vegetables because of decay. In 1918, the Department of Public Health in Toronto had to condemn 426,910 lbs. of perishable foods because they were unfit for human consumption. In warm weather Florida oranges lose 30 per cent. in transportation alone, and if we add to that decay after the fruit reaches the consuming centres, the total loss would be astounding. It is estimated that there is a loss of approximately seventeen per cent. in all butter as a result of early decomposition through inefficient facilities for proper chilling and refrigeration.

In addition to this, it must be remembered that a great proportion of those perishable foods consumed in our city are much inferior in food value, although not altogether unfit for human consumption, because of partial deterioration.

To sum up, it is estimated that between thirty and forty per cent. of perishable foods which are raised on the farm are never consumed at all, but are a complete loss. It has been pointed out that probably not more than ten per cent. of the total annual production of butter, cheese, poultry and eggs on this continent, and a still smaller percentage of fruit and vegetables, is placed in cold storage.

Effects of Cold Storage on Food.

Important scientific investigations have been made, more particularly of recent years, through the various Food Boards and the scientific workers employed by them, and the concensus of opinion has been that whether or not food is in a perfectly wholesome condition when taken out of cold storage depends on the condition of that food when placed in cold storage, the temperature and humidity of the cold storage, and the general sanitary conditions in connection therewith. It has been fully demonstrated that perishable foods placed in cold storage in good condition will, when kept under proper conditions, as already referred to, be perfectly sound and wholesome when removed, even after a long period of time.

It is quite obvious, therefore, that hand in hand with increased production should be more efficient preservation, inasmuch as in estimating the economic loss, it is not only the loss of these foods, but also the loss in labour that has been expended in bringing it to the market only to be condemned by Departments of Health.

What we have been endeavouring for the past five years to secure, are regulations requiring a thorough inspection of all foods before being placed in cold storage, the temperature and humidity of the cold storage plant, the stamping of all foods with the date and day on which they are placed in cold storage and also when these articles are removed and placed on the market, that they be labelled "Cold Storage." The labelling "Cold Storage" will cease to be any reflection on the value of the food the moment that the aforesaid regulations are rigidly enforced. And furthermore, by the efficient control by governments and municipalities of these cold storage plants, all future danger of abuse of cold storage plants as a means of hoarding food for higher prices will promptly cease. Let us, therefore, cease to condemn cold storage, but rather condemn the lax methods under which cold storage plants have been regulated and controlled.

The Board submit herewith, for the information of the members of the Council, the following report of the Medical Officer of Health for the month of October, viz.:—

The epidemic of smallpox that we are now confronted with in Toronto has gained its present proportions in consequence of the mild character of the outbreak and the differences of opinion for some weeks past as to the diagnosis, a great majority of the cases having been diagnosed as chickenpox. I may say, however, that similar epidemics and outbreaks have occurred in a very large number of the States in the Union during the past fifteen years, in many cases there being probably only one or two of the pocks that appeared on the individual patient that had any characteristics of smallpox, the great majority not going beyond the stage of the vesicle, and consequently resembling chickenpox rather than smallpox. However, a definite opinion has been arrived at, and there is no question about the cases under quarantine. No doubt there are also an enormous number of cases that have not been reported, being a mild form of this disease.

In this connection, it is important to bear in mind that this mild form of the disease is quite as communicable as is the more severe form, and that more serious cases may develop at any time. The total number of cases reported up to Tuesday morning of this week is 227. The spread of the disease seems to be rather on the increase, as the average number previous to this date was 25 during the 24 hours, but in the 24 hours preceding Tuesday, 58 cases had been reported. A portion of these are being cared for in the Smallpox Hospital and the balance are quarantined in their homes.

Overwhelming Endorsation of Vaccination.

The present outbreak of smallpox has revealed to us a lamentable lack of knowledge in a certain group of our population at least, as regards vaccination, which, in the light of our present knowledge of this subject, is incomprehensible. Previous to this, one felt justified in concluding that if these people would have even read intelligently the newspaper reports during the war that we have just passed through, they could not have failed to recognize the value of vaccination against smallpox, typhoid fever, para-typhoid and tetanus.

When the various nations entered the war, they called into requisition the best scientific skill in all activities, including the highest recognized authorities in medicine, surgery, bacteriology and scientific medical research, in order that our boys might be efficiently protected and receive the advantage of the united opinions of the aforesaid authorities. The concensus of opinion of these medical experts, not only of the Allied Nations, but also of Germany and Austria, was to the effect that no man should be permitted to enter the firing line until he was successfully vaccinated against smallpox, typhoid fever, para-typhoid and tetanus. The result of this was that there was not a death from smallpox on the entire Western Front during the whole period of the war, and the deaths from typhoid, para-typhoid and tetanus were practically negligible.

When one considers that this group represented the largest gathering of intellectual lights in advanced medical, surgical and bacteriological science ever assembled, one would think that such an overwhelming endorsation of the value of vaccination against smallpox would appeal to men of even the most ordinary intelligence as being most convincing.

To this we can add the endorsation of every scientific medical research institution in the civilized world, embracing such institutions in England and on this continent as the Lister Institute for Research, the Rockefeller Foundation for Medical and Scientific Research, the Carnegie Foundation for Scientific and Medical Research. To these might be added the endorsation of those who have immortalized their names in the field of medical and bacteriological research and have passed on to the next cycle of existence. I refer to such men as Jenner, Pasteur, Lister, Koch, Van Bering, and scores of others. And again to these may be added the British Medical Association, the American Medical Association, the Canadian Medical Association, the Local Government Board of Great Britain, the Department of Health of Great Britain, the various British Public Health Associations, the American Public Health Association, the American Association of State and Provincial Health Officers, the Canadian Public Health Association and the various Provincial Health Officers' Associations of the Dominion. The Ontario Medical Association, the Toronto Academy of Medicine, the New York Academy of Medicine, and in fact every recognized Medical Association throughout the civilized world. So that one can readily understand why, in the 60-page article on Smallpox and Vaccination, in the System of Modern Medicine, by Sir Wm. Osler, Regius Professor of Medicine in Oxford University, and Professor Thos. McCrae, M.B., F.R.C.P., Professor of Medicine in the Jefferson Medical College, the author goes on to say:—

> "Smallpox is highly infectious and no immunity is given by race, age, sex, season or even the most sanitary environment. Notwithstanding this, so great is the protection given by vaccination and re-vaccination, that a large majority of physicians who have been in practice for years have never seen a typical case of smallpox, and in civilized lands we rarely see an individual carrying the scars produced by this disease. The disease is infrequently seen, but its presence is continued by the ignorant or by the careless. The floating population, who do not acquire residence so as to be subject to vaccination laws, are often responsible for epidemics. The disease is also kept in existence by a class of people that have that peculiar order of mind which renders them incapable of sane judgment and who seek in every way to oppose vaccination and re-vaccination, not only for themselves, but for others. One of the saddest features in this connection is that in every epidemic there are a number of unvaccinated, innocent children, in no way responsible, who die of the disease or are permanently disfigured or blinded."

EVIDENCE OF THE INFLUENCE OF VACCINATION ON SMALLPOX.

The statistics of the London Smallpox Hospital show that the mortality of the unvaccinated was 35.5 per cent., and of those protected by vaccination 8.7 per cent. It is a recognized fact that even where smallpox occurs amongst those that are vaccinated it assumes a modified and usually an abortive form.

Possibly the most striking test of the possibilities of vaccination was in the war of 1870-71. This was the result of the far-sighted care of the German Military Authorities. The following are the comparative figures of case mortality in different classes:—

First—Those that had been only once vaccinated	14 per cent.
Second—Those re-vaccinated	5 per cent.
Third—Those not vaccinated at all	45 per cent.

With all her shortcomings, Germany has been among the nations that have led the world in safeguarding their people against smallpox. In 1874, the first law was passed requiring vaccination of every child in the German Empire before the end of the second year, and re-vaccination of all school children in the civil population before they reached their twelfth year. The mortality from this disease sank rapidly so that in 1910 the deaths from smallpox in the whole Empire of over sixty-five million people were 33, fifteen of these being foreigners. Previous to the compulsory vaccination Germany had from two thousand to three thousand deaths annually.

Another striking evidence of the protective value of vaccination is in the Philippines, Cuba, and Porto Rico. In the Philippines, under Spanish rule, there were about 40,000 smallpox deaths yearly, and 6,000 in Manilla. Although the people were at first bitterly opposed to vaccination, yet under the American Government compulsory vaccination was carried out in a most successful manner. So rapid were the results that since 1906 there has not been a single death from smallpox in Manilla, and the mortality in all the island has dropped from 40,000 to 700 per year. Over six million of the Philippinos have been vaccinated, without a single death, and where originally they fought the measure viciously, they have now learned to appreciate its results and seek vaccination with avidity.

It is rather interesting to note in this connection that owing to the precautions taken by the Hebrews to have their children vaccinated in early life, we have never had a case of smallpox in Toronto amongst the Jews previous to the present outbreak. Dr. Evans, former Commissioner of Health in Chicago, says that they rarely have a case of smallpox among the foreigners as they practically all come from countries where vaccination is compulsory. "Vaccinated foreigners," said Dr. Evans, "living in slum conditions, in all our cities, are much freer from smallpox than are our native born in the best residential districts."

In Africa, nearly everyone is pock-marked. The mortality from smallpox ranges from 25 to 50 per cent. In fact, in every nation where vaccination is not in force and the people are not vaccinated, the mortality from this disease ranges from 10 to 40 per cent. In 1914 the deaths from smallpox in Germany were 7, while the neighbouring countries where vaccination was not compulsory the number of deaths annually ranged from 800 to 5,821.

Previous to the time of Jenner, 95 per cent. of the people exposed to smallpox contracted the disease and an average of 25 per cent. of these proved fatal. It has been estimated that an average of 90 per cent. of those not vaccinated, if brought into direct contact with the disease, will contract it, and at the same time it has been demonstrated that at least 90 per cent. of those vaccinated if brought in direct contact with the disease, will escape infection. The number of cases of smallpox in any community is a true index of the extent to which compulsory vaccination is being enforced and is also accepted as an accurate index to the intelligence of the people.

It is obvious then that the only objection that so-called conscientious objectors to vaccination can raise is the alleged dangers of complications from impure vaccine itself following the operation of vaccination, and it is regrettable that we have had such gross exaggeration and misrepresentation in this connection. In the first place, practically all the vaccine used for the vaccination of our children is glycerinized vaccine and prepared at the Connaught Laboratories, under the supervision of the best recognized experts in the country. This vaccine is guaranteed to be absolutely free from any pathogenic germs.

One can understand that in the early history of vaccination, when direct inoculation took place, and when the arm to arm process of vaccination was in vogue, that that procedure left itself open to objections, and the possibilities of undesirable complications. That procedure is now condemned by our Legislature and is no longer permitted, and therefore need not enter into the discussion of this subject.

Alleged Dangers From Vaccination.

The gross misrepresentations of facts in this connection by those opposed to vaccination and for the purpose of discrediting vaccination might be looked upon, in the light of modern knowledge, on this subject, as a huge joke, if it were not for the tragedy of it. Fortunately these people are not taken seriously by the intelligent, but there is a large number of people in every municipality who have not the time nor the opportunity to obtain the facts, and that is my apology for bringing this problem before your Board. These people must be protected against these misrepresentations as well as against the smallpox.

It must be distinctly understood that the operation for vaccination is a minor surgical operation. That is, the epidermis, or outer layer of skin, is removed over one or two small areas in order that the surface exposed may be capable of absorbing the virus, and that there is the same element of danger in connection with this tiny wound that there would be in connection with any other wound if it were not properly cared for until it had entirely healed up. With the perfected vaccine that we have at present and our knowledge of the necessary precautionary methods to be observed in vaccinating, I do not think any Health Officer would hesitate to guarantee that there would be no complications following the operation of vaccination, no matter how large a number there might be, providing these cases would be under more or less constant observation, or would report at stated intervals for treatment such as in any minor operation. But inasmuch as there must be a large number in every municipality who will not take these precautions, there is always a possibility of an occasional sore arm developing. However, in the 7,000 cases which I vaccinated at the old City Hall in the epidemic of 1885, there was not one single fatal case.

Let us look on some of the facts in regard to recent experience. In speaking to the A. D. M. S. for this District on this matter, he advises me that among the first 30,000 of our boys sent out from Valcartier, who were vaccinated, there was not one fatal case, nor were there any serious complications, and that as far as he has been able to learn there was not a fatality in the way of a complication in over 500,000 of our boys that were vaccinated and sent overseas or retained for home service.

In the mobilization of the United States Army and Navy they have a record of 585,000 vaccinations, without a single fatality.

Then again Professor Rosenau, of Harvard University, quotes the experience of European nations in this connection, to show how seldom complications occur if proper care is used in the technic of vaccination. In 13 years from 1885 to 1898, 32,166,619 children were vaccinated. Of these 115 died within a few weeks or months after the operation, and further investigations show that one-half did not die as a result of vaccination, and that the others were for the most part the result of wound infection, the same as might occur from carelessness in connection with even a pin scratch or a slight cut from a knife or a razor.

We have heard a good deal of talk about tetanus following vaccination. For years, since vaccines have been prepared under rigid precautions and government control, together with the more universal application of the principles of antisepsis and asepsis in the operation of vaccination, the number of such cases is practically negligible.

The American Public Health Reports from Washington show that from 1904 to 1913, inclusive, over 31,000,000 doses of vaccine virus were used in the United States, and while there were 41 cases of tetanus, yet when the histories of all the cases were obtained, there was no evidence to show that it had any connection with the vaccine.

Dr. Anderson, formerly of the Public Health Service in Washington, in this report, states that infection with tetanus is received by the contamination of the vaccinated wound, such as might occur in the infection of any other minor surgical wound not properly cared for. One only needs to recall the enormous number of deaths from tetanus following the celebration of the Fourth of July until that was abolished.

Furthermore, out of over 6,000,000 vaccinated in the Philippines by the United States Public Health authorities, there was not one fatality, and yet the mortality from smallpox previous to the introduction of vaccination ranged from 25 to 40 per cent., and in some municipalities practically one-half of the entire municipality was wiped out and the balance disfigured for life.

In the year 1917, reports from the New York State Department of Health state that in 50,000 vaccinations, in only one case out of the entire number did a death occur, which had the slightest connection with vaccination, and even in this case the evidence was not at all conclusive.

It must be apparent to you that it is impossible for me, having regard for space and time, to do more than quote some of the outstanding authorities who endorse in an unqualified way the value of vaccination as a protection against smallpox. We cannot all be experts in advanced medical science, but we should be sufficiently intelligent to interpret in an intelligent way the evidence placed before us by these scientists who are making a life study of these problems, and if we are not capable of doing this, we should know enough to maintain a dignified silence. If all the people in the world could be persuaded to stick to their last, the world would be much better advised and there would be decidedly less unrest.

The Board submit herewith, for the information of the members of the Council, the following report of the Medical Officer of Health for the month of November, viz.:—

It is somewhat surprising that quite suddenly a certain group of the population of Toronto has become extremely sensitive and in fact antagonistic to interference with personal rights, personal liberty, but are they consistent? Several years ago the Local Board of Health passed an order requiring all yard closets to be abolished. This was purely an interference with the rights and liberties of citizens who wanted their closets in their back yards instead of having the sanitary conveniences in their homes. Not very many years ago, under the Truancy Act, it became imperative that every child should attend school until fourteen years of age. Was not this an interference with the personal rights and liberties of the parents and children themselves? Parents may have wanted their children to go to work earlier than that. And within the present year, with utter disregard for the people's personal liberty and personal rights, of which we have been hearing so much lately, by a plebiscite, prohibition was carried by an overwhelming majority, therefore depriving the individual of his rights to drink whiskey and beer and other intoxicating liquors whenever he feels like doing it. When people contract communicable diseases, we tie them up in their homes and thus deprive them of personal liberty and individual rights. In fact, practically every activity of the Board of Health and the Department of Public Health means depriving some of our citizens of their personal liberty, and individual right to do as they please, ofttimes compelling them to do the very things they do not want to do. This is why Departments of Health are unpopular, just in proportion to the efficiency with which they discharge their duty. Why all this interference with personal liberty and individual rights? Because British justice, properly interpreted means that when the liberty and rights of the individual are not in the interests of the welfare of the masses, the rights of the individual must yield. This was the ruling of the Supreme Court of the United States when the question was raised as to whether or not compulsory vaccination was consistent with the Constitution of the United States, and consequently the ruling of the Supreme Court of the United States was in favour of compulsory vaccination, maintaining that it was quite consistent with the Constitution of the Union.

The Vaccination Act was passed in 1914, but this is the first epidemic, and consequently, according to the wording of the Act, the first time we have been called upon to enforce it, with the results that are well known to the members of this Board. However, this is merely history repeating itself, for since the time of Jenner, whenever and wherever compulsory vaccination has been enforced, as Professor Harrington, of Harvard University, expressed it: "There has been a number of misguided individuals who have banded themselves together as anti-vaccinationists and who have put forth every effort they possibly could to influence others against vaccination, and even endeavoured to influence the governments." I wondered at first where they got hold of all the antiquated statements that they have been repeating from time to time, as regards the source of vaccination and the awful results of vaccination, the transmission of disease from man to man by vaccination, etc. However, I find in looking over the history of vaccination and anti-vaccinationists, that the arguments that have been recently used and the statements made are practically the same arguments as were used and the same statements that were made three-quarters of a century ago by similar groups of so-called "anti-vaccinationists."

You are well aware that at the time that Jenner propounded the principles of vaccination and pointed out its efficiency in controlling smallpox, and even previous to that, it had been customary to practise inoculation from arm to arm, and even after vaccination was established, arm to arm vaccination was indulged in, but these procedures have been prohibited in all countries for between a quarter and a half a century.

These efforts against vaccination have always been instituted by a small group of agitators who seem to have a method in their madness, inasmuch as the agitators themselves get a lot of free advertising, which brings them into the limelight, in many cases men that have never been heard of before outside of their own little circle of acquaintances. Naturally, people enquire, "Who are these people that are doing all this talking? What do they do?" and so forth. So that one can readily understand that it is an excellent medium of advertising and an excellent opportunity for them to have themselves brought before the public, and the balance are practically made the scape-goats. Imagine if you will for a moment, this group of men, for the most part without a vestige of scientific knowledge or training, placing their opinions against the accumulated knowledge of all the scientific and medical research workers in the world. I have yet to find evidence of one public-spirited man, who has the welfare of the nation at heart, agitating against vaccination. The one that in our own city probably most nearly approached that was the late Rev. Elmer Harris, of Walmer Road Baptist Church. I understand he was strongly opposed to vaccination, refusing to be vaccinated himself or to have his family vaccinated. He started on a tour around the world, and on reaching India where smallpox is more or less prevalent all the time, he contracted a virulent form of this disease, and died there as a result. It is pathetic to think that men of that type should permit themselves to be misguided and misdirected on such a vital problem.

The petitions that these people are getting signed are a huge joke and mean absolutely nothing, as the signatures are obtained for the most part through the misrepresentations of facts as they go from house to house seeking these signatures. In this connection, I presume there has been more misrepresentation of facts made by these opponents of vaccination in No. 2 Committee Room and in the Council Chambers in the past six weeks than has been on all subjects in the previous ten years. Take for instance the malicious misrepresentations made by these people in regard to the source of vaccine. When, if they have any modern knowledge at all of this subject, they must know that the statements they made were absolutely false and that the vaccine as used in Toronto is obtained under most extreme hygienic precautions, from a perfectly healthy calf, and, therefore, absolutely free from any danger to the human.

Then again, in reply to the misrepresentations of just as gross a character, concerning the results of vaccination in Toronto. I defy them to present one single instance in which a death occurred that could be attributed to vaccination. I defy them to present one single instance in which an arm has been sacrificed or in which the sacrifice of an arm has even been threatened amongst the 200,000 to 250,000 that have been vaccinated in the City of Toronto.

Scores of instances could be cited where, when prompt action has been taken by municipal authorities to enforce compulsory vaccination in the beginning of epidemics, they have been controlled within a surprisingly short time. Probably one of the most outstanding of these was the experience in Glasgow in 1901 and 1902. That city had prepared an Exposition at great expense, and when cases of smallpox began to be reported, realized that if something effective was not done at once, the enterprize was doomed to failure. The City Corporation, acting sanely under medical advice, started a great vaccination and re-vaccination crusade. The entire medical profession of the city was employed in the work, and all who could be induced to submit to the operation were vaccinated. The results were striking. Starting out with a population of 675,887 who had not recently been vaccinated (a condition very similar to that which we are passing through in Toronto) the workers, within the next fifteen months vaccinated 404,855 persons, leaving only 271,032 who refused to submit to re-vaccination. During this entire period, not a case of the disease developed amongst the vaccinated and re-vaccinated, while amongst those not so protected there occurred a total of 1,858 cases.

Then we have the recent experience in the Institution at Orillia, by the Provincial Board of Health, where prompt action was taken, all the inmates vaccinated or re-vaccinated where necessary, with the result that the epidemic was overcome.

These experiences could be multiplied scores of times, and I unhesitatingly say that if the requests sent on by this Board had been complied with, and compulsory vaccination enforced in the City of Toronto, that we would have had the present epidemic entirely under control before this time, and the people of the city would have been saved thousands and tens of thousands of dollars.

It must be apparent, therefore, that this Board cannot afford to allow to pass unchallenged the grossly false statements that have been made by these so-called "anti-vaccinationists," because there is an element of danger ahead if the actual facts are not given to the people. For instance, in London, during the third quarter of the seventeenth century, the average annual mortality from smallpox per million was 4,000. One hundred years later, in 1770 and 1780, it was more than 5,000. In the first year after vaccination was introduced it was still more than 2,000. By the middle of the nineteenth century it fell to about 500, and in the last decade of the century to less than 75. In the whole of England during the period of optional vaccination the mortality rate fell from 2,000 to 417, and after the practice was made compulsory, in 1850, it fell to 53. In August, 1898, that is nearly half a century later, through the influence of the anti-vaccinationists, the terrors of smallpox having been very materially wiped out as a result of compulsory vaccination, the "conscientiously believes" clause was enacted in deference to the anti-vaccinationists, and by December 31st, 230,147 persons were exempted. The result of this modification of the law has been recently shown by the extensive epidemics in London and elsewhere.

At Gloucester, England, in 1895, after eight years of practical abandonment of compulsory vaccination, that is to say, of neglect on the part of the authorities to enforce the law, an epidemic of smallpox occurred in what was practically an unvaccinated community. The cases increased at such a rate that great alarm was felt and extensive measures were taken for general vaccination. In the closing weeks of 1895, 31 cases occurred, in January 28 more were reported, in February the number increased to 146 and during March to 644. Towards the last of that month the authorities gave directions for the enforcement of the laws and work was begun, but before this could be carried out no less than 744 cases occurred. During the last days of April, the Committee undertook general vaccination of the city and within a few days every house had been visited. By the end of June the city had been converted from a practically unvaccinated city to the best vaccinated city in the country, nearly 36,000 persons having been vaccinated. The epidemic began at once to decline, and before August it had entirely disappeared. Nearly 450 persons, however, had died, and 1,600 others who survived bore lasting evidence of the disease on their faces.

A Pathetic Incident.

A young man, having recently graduated from the University, and recovering from a severe attack of smallpox, with a badly disfigured face, in discussing the disease with some of his friends, said: "It is hard enough for one to be disfigured for life, without feeling in addition that one is forced to carry this badge of ignorance on the part of both his parents, himself and the municipal authorities who are responsible."

As Dr. Evans, of Chicago, has recently stated: "A vaccination scar on any lady's arm should be looked upon as a badge of intelligence."

Character of Present Epidemic.

We are fortunate in having to deal with a *mild* epidemic of smallpox, in which the mortality is practically negligible. If it were of a more virulent character and the mortality high it would be much more easily handled. Last year when we were going through an epidemic of influenza, the people of Toronto were clamouring for a vaccine that would prevent the disease, and the medical profession was severely censured for not having discovered a vaccine, and if a vaccine had been available, the public would have been crawling over each other in a mad rush to get it. Why? Because the epidemic was severe and the mortality was large. But we have had many epidemics of influenza in this city in which the mortality has been almost negligible. We have also had mild and severe epidemics of smallpox, and of other communicable diseases. It is impossible to say when these mild epidemics may assume a more severe form from which we may have a very high mortality. Epidemics of smallpox in Europe and on this continent previous to the introduction of vaccination were all attended by quite as high a mortality as we had from influenza last year, and this holds true to-day in every country where vaccination is not enforced. Within the last year an epidemic occurred in a small city in China which proved fatal to half the population.

As an illustration of the possibilities of virulent and fatal cases resulting from mild ones may be cited the death of the late Dr. Little, which occurred in this city some sixteen years ago. A young man called at his office with only one or two spots on his body. There was practically no smallpox in the city at the time, and consequently the doctor was doubtful about the character of these spots. The young fellow was not at all ill and apparently had no constitutional symptoms. However, a few days after the doctor was sent for to see him. He saw him at his boarding house and pronounced the case one of smallpox and reported it to the Department of Health. He was removed to the smallpox hospital, and when the history of his case was taken it was found that he had recently come here from Cincinnati. He stated that they had no smallpox in Cincinnati, but they had an epidemic there of chickenpox. Whereupon Dr. Sheard, then Health Officer, communicated with the authorities in Cincinnati, who advised him that they had recently rounded up between 200 and 300 cases of smallpox, which had been diagnosed as chickenpox. Ten days after, the late Dr. Little developed the disease. He was removed to the hospital and died subsequently of what Dr. Sheard reported as one of the most malignant cases of smallpox he had ever witnessed, his face having been swollen beyond all recognition, and his face and body was one mass of corruption in the developed stages of the disease. So that in the midst of a mild epidemic we may be on the brink of a much more virulent type of the disease.

It must be apparent to every citizen that Boards of Health and Departments of Health have one object, and one only in view, and that is the most efficient way of safeguarding human life and controlling disease, and in doing so, require to act in the light of the most advanced knowledge obtainable.

The Board submit herewith, for the information of the members of the Council, the following report of the Medical Officer of Health for the month of December last, viz.:—

In the introduction of my Report for the month of December, I beg to submit the following annual summary from the Division of Records and Statistics, dealing with the general death rate, infant mortality and death rates from the more common communicable diseases. This report is very gratifying, in view of the fact that in all of the larger cities on this continent following the influenza epidemic of 1888-1890 and 1891, it was several years afterwards before the general death rate assumed its normal proportions. This has fortunately not been our experience in Toronto in the past year. On the contrary, it is gratifying to be able to report that in 1919 we have had the lowest general death rate ever recorded in our city.

Annual Summary—1919.

(N.B.—Figures are based on deaths *registered* in the year and will be subject to slight revision when tabulation is made of deaths that *occurred* in the year).

General Mortality—Year 1919.

The death rate from all causes in 1919 was the lowest ever recorded in Toronto in spite of the fact that the influenza epidemic extended into the early months of the year. Exclusive of still-births, 5,703 deaths were registered, which, calculated on the assessment population, gives a general death rate of only 11.4 per thousand of population. This rate is 27 per cent. lower than last year's, which, of course, was high on account of the "flu." More significant of the progress that has been made is the fact that the death rate in the year 1919 is less than two-thirds of the average for the ten years preceding the re-organization of the Department of Public Health in 1911.

Deaths—All Causes.

Year.	Deaths.	Death Rate Per 1,000 Population.
1919	5,703	11.4
1918	7,635	15.6
1917	5.597	11.8
1916	5,931	12.9
1915	5,548	12.0
1914	5,677	12.1
1913	6,272	14.1
1912	5,680	13.9
1911	5,442	14.5
1910	5,159	15.1
*1909	4,779	15.3
*1908	4,356	15.2
*1907	4,234	15.5
*1906	3,681	14.5
*1905	3,611	15.1
*1904	3,626	16.0
*1903	3,538	16.1
*1902	3,063	14.5
*1901	3,247	15.8
*1900	3,418	17.1

*Average 1900 to 1910, 15.5.

INFANT MORTALITY—YEAR 1919.

The number of deaths of infants under one year of age was 1,140. This corresponds to an infant death rate of approximately 95 per 1,000 births, which is second only to the 1917 figure.

No correction is made for incompleteness of birth registration, which probably amounts to about 15 per cent. Moreover, the birth figure upon which the calculation is based is estimated, as the true number of births registered in 1919, exclusive of still births, is not yet known. A corrected infant mortality rate would probably be in the neighbourhood of 83.

Year.	Infant Deaths Under 1 Year of Age.	Uncorrected Infant Death rate per 1,000 Births.	
1919	1,140	95	(about)
1918	1,238	105	1914-1918, 105
1917	1,112	92	
1916	1,349	108	
1915	1,398	109	
1914	1,556	112	
1913	1,877	137	1909-1913, 148
1912	1,584	145	
1911	1,432	144	
1910	1,420	160	
1909	1,410	182	
1908	1,215	155	1904-1908, 159
1907	976	148	
1906	918	156	
1905	935	164	
1904	903	174	
1903	827	167	1899-1903, 173
1902	713	144	
1901	711	163	
1900	880	197	
1899	777	195	

ACUTE COMMUNICABLE DISEASES—YEAR 1919.

The statistics of the more prominent acute communicable diseases are as follows:

Cases and Deaths from Certain Acute Communicable Diseases.

	1919		1918		1917		1916	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Typhoid fever	75	13	101	15	95	18	181	32
Scarlet fever	1,416	26	1,096	33	548	13	639	20
Diphtheria	2,132	168	1,163	97	1,445	82	1,249	110
Smallpox	1,864	0	1	0	7	0	3	0
Measles	175	0	3,656	38	2,839	20	3,201	80
Whooping cough	598	33	778	53	538	33	529	36
	6,260	240	6,795	236	5,472	166	5,802	278

From the above table it will be seen that cases of smallpox, diphtheria and scarlet fever were more numerous than usual, whereas the reverse is true of typhoid fever, measles and whooping cough.

There were no deaths last year from measles. The typhoid fever record of 13 deaths, or 2.6 per 100,000 population, is also a notable one. For five years the death rate from typhoid has averaged only 3.7, as against 27.7 for the five years, 1906-1910.

A comparison of the 1919 death rates from these acute communicable conditions with those of the preceding decade follows:

Death Rates per 100,000 Population from Certain Acute Communicable Diseases.

Year	Typhoid	Scarlet Fever	Diphtheria	Smallpox	Measles	Whooping Cough	Total
1919	2.6	5.2	33.6	0.0	0.0	6.6	48.0
1918	3.1	6.7	19.8	0.0	7.8	10.8	48.2
1917	3.8	2.7	17.3	0.0	4.2	7.0	35.0
1916	6.9	4.3	23.9	0.0	17.4	7.8	60.4
1915	1.9	3.0	14.0	0.2	18.1	10.6	47.8
1914	8.1	6.8	17.9	0.2	3.2	6.4	42.6
1913	11.4	10.8	19.5	0.0	18.0	9.0	68.7
1912	13.2	13.2	39.0	0.0	6.3	19.3	91.0
1911	21.6	33.4	40.1	0.3	15.7	5.3	116.4
1910	44.2	25.7	45.3	0.0	14.6	10.8	140.6
1909	24.7	25.0	66.2	0.0	22.8	9.3	148.0

PNEUMONIA.

Although the influenza epidemic lasted into 1919, with its accompaniment of pneumonia, the deaths from pneumonia and broncho-pneumonia totalled only 660, or 132 per 100,000. This is much lower than in the preceding three years, and about the average for the ten years before that.

That pneumonia is one of the diseases that is gradually increasing is shown by this table:

Deaths from Pneumonia and Broncho-pneumonia.

Year	Death Rate Per 100,000 Population per Annum.
1919	132
1918	267 (Influenza epidemic)
1917	179
1916	176
1911-1915	130
1906-1910	134
1901-1905	125
1896-1900	111
1891-1895	129 (Influenza epidemic)

HOUSING AND INDUSTRIAL HYGIENE AND INDUSTRIAL DISEASES.

The activities that seem to be demanding the special attention of the Board during the coming year are those of Housing and Industrial Hygiene and Industrial Diseases. In this connection I am submitting the following report of the work done in these divisions for the past year, which explains the necessity for prompt action, especially in regard to the housing problem.

It is conceded by those in a position to know that the year 1919 has been the most active for many years regarding buildings erected in the city, notwithstanding the increased cost of material and labour, and in view of the shortage of dwellings and the congested overcrowded conditions reported one year ago, the question may naturally be asked—has the situation been at all relieved?

To answer this question and in order to get as accurate a report as possible of the conditions existing at the present time, some three months ago the inspectors of each district were instructed to answer the following questions and send in their report at the end of the year.

1.—Does overcrowding exist to any extent in your district?
2.—Has the house shortage been relieved any?
3.—Are there any vacant dwellings, and how many in your district available for rent?
4.—Is there any increase in the foreign population?
5.—Give the number of yard privies as near as possible in your district, also the number of sanitary conveniences that have been installed during the year.

Respectfully submitted,

J. A. Cowan,
Chairman.

Board Room,
Toronto, January 15th, 1920.

WELLAND.

April 1st, 1920.

The Mayor and Aldermen, City of Welland.

Gentlemen,—I beg leave to submit my annual report for the year 1919. I am pleased to be able to say that, except for the early part of the year, when there were a number of deaths from influenza and pneumonia, our city has been fairly free from disease, and the death rate for the last three months comparatively low. Over one-third of the deaths during recent years have been among the foreign population, the majority of whom live outside the city limits, but die in the hospital here.

There were only three cases of typhoid reported as occurring among the residents of the city, with one death. Several cases from Port Colborne and the surrounding country were treated in the hospital.

Five cases of diphtheria were reported, with two deaths. Both died shortly after medical help was called. Three cases of scarlet fever, and three of whooping-cough were reported, with one death from the latter disease. I regret to say that in the case of measles, whooping-cough and chickenpox, medical men are somewhat careless in reporting cases of these diseases.

The sanitary conditions are, I am pleased to state, steadily improving. We have very few outside closets, and the citizens are taking more pride in keeping their places sanitary and clean.

Our milk supply is all scientifically pasteurized, and comes from a clean and well-kept dairy.

A branch laboratory of the Provincial Board of Health was established in the city in September, for the purpose of making daily examinations of the water supply of this district. In spite of the fact that the water is chlorinated, the laboratory tests showed that on some days the water contained colon bacilli. This was thought to be due to the fact that the water was rendered very turbid, and to the discharge of sewage from passing boats.

The most unfavorable feature in our death rate is the large mortality of children under one year of age. This is not due to infectious diseases, but is the result of improper pre-natal care of mothers, and want of knowledge in the proper care of babies. We hope during the coming year to establish child welfare work, as well as medical inspection of schools. The holding of child-welfare clinics, the appointing of a public health nurse, and the supplying of pasteurized milk to those who cannot afford the present cost, should do much towards reducing the mortality among babies, as results have shown in cities where this kind of work is carried on.

All of which is respectfully submitted.

J. H. Howell, *M.O.H.*

WINDSOR.

66 Ouellette Avenue,
Windsor, Ont., March 5, 1920.

Dr. John W. S. McCullough,
Chief Officer of Health,
Toronto, Ont.

Sir,—The thirty-seventh annual report of the Provincial Board of Health of Ontario for the year 1918 contained therein the annual report of G. R. Cruickshank, M.O.H. for the City of Windsor. In the closing paragraph of his report, Dr. Cruickshank stated:

"For more than two years we have been advocating that a health district should be established, but the uncertainty as to our financial condition after the war has seemed to make our efforts futile. It is quite likely this will be accomplished soon."

As the result of joint effort on the part of the Local Boards of Health of Windsor and Walkerville and representations made to the Provincial Legislature by leading citizens of the Border Municipalities, the Essex Border Utilities Commission, a joint body representing seven municipalities situated along the Detroit River, viz.: Sandwich East, Ford City, Walkerville, Windsor, Sandwich, Ojibway and Sandwich West, was vested on July 1st, 1919, with the powers of a Local Board of Health. By such action four Local Boards of Health controlling health matters in Ford City, Walkerville, Windsor and Sandwich, were merged into the one organization, and the Essex Border District of 49,872 inhabitants, and an area of 19 square miles, came under the one head for public health purposes.

The Act providing for this new departure is as follows:

1. The Local Board of Health for the Essex Border Municipalities, from and after the first day of July, 1919, shall consist of the Chairman of the Commission and the Medical Officer of Health appointed by the Commission, and three resident ratepayers of the Essex Border Municipalities, to be appointed annually by the Commission, at

its first meeting in every year. The Board shall be known as the Local Board of Health for the Essex Border Municipalities, and shall be a local board of health within the meaning of The Public Health Act.

2. The Commission shall have the powers and privileges and perform the duties of a municipal council, under The Public Health Act, except that the Commission shall not have the power to raise any sum of money by taxation, or to direct any sum to be added to any collector's roll.

3. The Secretary of the Commission shall be the Secretary of the Board of Health, and shall perform the duties prescribed by The Public Health Act for the secretary of a local board of health.

4. For the year 1919 the medical officer of health and three resident ratepayers shall be appointed by the Commission on or before the first day of July, 1919, to form the Local Board of Health, as provided in subsection (1) hereof.

5. Notwithstanding the provision of section 14 of The Public Health Act, from and after the first day of July, 1919, the Local Boards of Health and the Medical Officers of Health for the municipalities of the City of Windsor, Towns of Walkerville, Sandwich, Ford City and Ojibway, shall be discontinued, and the Local Boards of Health and Medical Officers of Health of the Townships of Sandwich West and Sandwich East shall not have jurisdiction over those parts of the said municipalities included within the Essex Border Municipalities.

6. The Commission shall appoint a legally qualified medical practitioner to be the Medical Officer of Health for the Essex Border Municipalities, who shall have the powers and perform the duties of a medical officer of health under The Public Health Act, and who shall be paid a reasonable salary by the Commission.

7. The Commission shall also appoint such number of sanitary inspectors for the Essex Border Municipalities as may be deemed necessary by the said Local Board of Health and as may be prescribed by the regulations, who shall be subject to the provisions of The Public Health Act.

8. The Treasurer of the Commission shall forthwith upon demand pay the amount of any account for salary of the Medical Officer of Health, or for services performed by any officer under the direction of the said Board, and for materials and supplies furnished, or for any expenditure incurred by the said Board or by the said Medical Officer of Health or sanitary inspectors, in carrying out the provisions of The Public Health Act, after the said Board has, by resolution, approved of the account, and a copy of the resolution, certified by the chairman and secretary of the said Board, has been filed with the treasurer of the Commission.

9. The accounts so paid by the Commission under this section shall be paid to the Commission by the Essex Border Municipalities, upon application made under section 7 of this Act, and so far as such expense was, in the judgment of the Commission, incurred for the benefit of one only of the said municipalities, shall be paid by that municipality, but, so far as incurred for the benefit of more than one, shall be paid by those municipalities proportionately to their population, according to the last certificate of the assessor or assessment commissioner, except that the proportion to be paid by the Town of Ojibway shall be fixed by the Commission until such time as the Commission shall decide and declare that its population has increased, so that it will bear its fair proportion under this section.

10. The said Local Board of Health shall have the right to require that any sum of money expended for sanitary conveniences under section 25 of The Public Health Act shall be added to the collector's roll of the municipality within which the premises are situate.

11. Any expense incurred under section 34 of The Public Health Act may be recovered from the Commission or from any one or more of the municipal corporations certified to by the minister, and in case of payment the right of recovery under subsection three of said section shall accrue to the corporation or corporations paying.

THE NEW BOARD.

Owing to the fact that such legislation was not granted until May, the Essex Border Utilities Commission was not wholly prepared to take over the duties as prescribed, and as a temporary measure the employees of the various Local Boards of Health were retained for a period of two months, to carry on the health duties in their respective municipalities, under the supervision of Dr. G. R. Cruickshank, who kindly consented to act as Medical Officer of Health until this officer was appointed by the Commission.

On June 20th the Commission appointed Dr. Fred. Adams, Chief Bacteriologist, Toronto Health Department, as Medical Officer of Health. Dr. Adams reported that he would assume his duties on September 1st. The Commission further appointed the Local Board of Health as follows:

Gordon M. McGregor, Chairman, (Ford City); Dr. G. R. Cruickshank (Sandwich), Dr. C. W. Hoare (Walkerville), Dr. U. J. Durocher (Windsor), Dr. Fred. Adams, M.O.H., members.

A temporary Board, to act until the arrival of Dr. Adams, was appointed. They were as follows:

Gordon M. McGregor (Ford City), Dr. Thaddeus Walker (Walkerville), A. F. Healy (Sandwich), Dr. U. J. Durocher (Windsor), Dr. G. R. Cruickshank, acting M.O.H., members.

Dr. Adams assumed his duties on September 1st, and was given an absolutely free hand in appointing the members of his staff.

The offices of the Essex Boarder Utilities Commission were used as Board of Health offices until November 1st, when the Commission moved into more spacious quarters, and an entire portion of the building they occupied was set apart for the Local Board of Health.

District Health Survey.

Meanwhile, Dr. Adams was actively engaged upon a survey of the new health district, which was completed in December, 1919. In his report Dr. Adams recommended the appointments for his staff for the year 1920, which included:

Bacteriologist and Food Controller.
Laboratory Assistant.
Milk and Food Inspector.
Chief Sanitary Inspector.
Assistant Sanitary Inspector.
Two Public Health Nurses.
Quarantine Inspector,

and the following programme of activities for the year:

Laboratory assistance in those infectious diseases where a laboratory can assist the physician in reaching a correct and early diagnosis, e.g., diphtheria, tuberculosis, typhoid, gonorrhea, etc.

Regular bacteriological examinations of the raw and chlorinated water from the two local municipal supplies, to insure that these supplies are kept safe at all times, and to prevent dangerous conditions from continuing undiscovered and uncorrected until a water-borne epidemic supervenes.

The chemical examination of milk for butter fat, total solids and preservatives, to be sure milk offered for sale is not skimmed, watered, etc.

The bacteriological examination of milk, to be sure it is fresh, clean and safe.

The periodical inspection and licensing of dairies and restaurants.

The periodical inspection of slaughter-houses, grocery, meat and fish shops, bakeries and other places, where food for human consumption is prepared or offered for sale.

Inspection of laundries.

Systematic sanitary patrol of the district and the abatement of nuisances of all kinds.

Condemnation of dwellings unfit for human habitation.

Abatement of overcrowding.

Quarantine in all its branches, including disinfection, supplying of households quarantined for smallpox, tracing of infection, etc.

Tuberculosis work—Supervision and instruction of home cases by nurses; clinic, etc.

Child welfare work. Visiting nurses; clinic, etc.

The combating of venereal diseases; special treatment; clinic, etc.

Public education through the "Health Bulletin," and by other means of personal hygiene, care of babies and children, prevention of tuberculosis, and other public health matters.

Compilation and analysis of birth and death returns, so that some accurate knowledge of the health rate may be known.

Stocking, storing and distribution of biological products supplied free by the Provincial Board, e.g., diphtheria and tetanus antitoxin, anti-meningitis serum, typhoid vaccine, etc., etc.

All of which was endorsed by the Essex Border Utilities Commission at their first meeting of the year.

Inspection of Restaurants.

During Dr. Adam's term of office, from September 1st to December 31st, 1919, he was called upon to deal with many matters which clearly showed the practicability of the joint health body for the district. The first was a question of restaurants. An investigation showed that the restaurants were not being conducted in accordance with the regulations of the various municipalities. A by-law was drawn up to make the regulations throughout the Border uniform, and, following the passing of the municipal by-laws, many restaurants were closed and others were ordered to make conditions satisfactory.

SMALLPOX.

On Wednesday, November 26th, owing to the prevalence of smallpox in Toronto and other points of Ontario, the Department of Public Health of the United States Government placed into effect an order requiring vaccination of all persons entering into the United States at the Border ports. To cope with this order, the Health offices were kept open from 8 a.m. until midnight daily for over a month, and over 5,000 residents of the Border District were vaccinated by the Board of Health staff.

On Friday, December 19th, the Local Board of Health placed into effect an order compelling all school children to be vaccinated. As a result of these precautionary measures taken, the Border District had no cases of smallpox up to December 31st, 1919.

GENERAL AND ISOLATION HOSPITAL.

Dr. G. R. Cruickshank, in his 1918 report, stated further that "We are not likely to get an isolation hospital." Both the general hospital and isolation hospital requirements are most urgent, but the Essex Border Utilities Commission has been vested with the following powers:

1. The Commission shall have, and is hereby vested with, the power of a municipal corporation, to establish and erect, maintain, manage and control within the Essex Border Municipalities one or more isolation hospitals, for the reception and care of persons suffering from any communicable disease.

2. The commission may agree for temporary advances, and may borrow money by the issue of debentures for the purpose mentioned in subsection (1) hereof, and it shall not be necessary to obtain the assent of the electors of the Essex Border Municipalities to any by-law for raising money for such purpose; such debentures shall be payable within twenty years from the date of the issue thereof.

3. The commission shall not establish any such hospital until it has submitted the plans and a report showing the proposed equipment and cost and its apportionment amongst the several municipalities, to the Provincial Board of Health, and obtained permission of the Provincial Board of Health to proceed.

4. Upon permission being given by the Provincial Board of Health, a duplicate of the report shall be filed with the clerk of each municipality, and such report shall be subject to the provisions of section 16 and 22 of this Act.

(*g*) Upon completion of any work provided for in this section, the maintenance shall be provided for under the provisions of section 23.

6. The Commission shall have the powers given by sections 49, 50, and 51 of The Public Health Act to a municipal corporation in regard to emergency hospitals within the Essex Border Municipalities, and the acquiring of lands and buildings for that purpose, and the cost shall be paid under subsection (9) of section 26 of this Act.

1. The Commission may erect, establish, equip, maintain, manage and control a public hospital for the Essex Border Municipalities, for the treatment of persons suffering from disease or injuries.

2. The erection, establishment and equipment of such hospital shall be a work authorized under the provisions of this Act.

3. A preliminary report shall be filed under section 15 of this Act, and shall be made by an engineer, architect, contractor or other persons skilled in the matter and appointed by the commission for that purpose and the provisions of sections 16 to 23, inclusive, shall apply to the report so far as the same shall be applicable.

It is anticipated that the requirements in this direction will be planned for in the year 1920.

I have the honour to be, Sir,

Your obedient servant,

W. JAMES BAXTER,
Secretary-Treasurer.

WOODSTOCK.

To the Mayor and Aldermen of the City of Woodstcok.

Gentlemen,—I hereby beg to submit my annual report of the Health Department of the City of Woodstock, for the year ending November 15th, 1919.

The population of the city by the last census is 10,126.

The births registered during the year were 192.

The deaths were 176, of which fourteen were non-residents who came to the city for treatment, leaving 162 as the city's portion; and deducting from this twenty still and premature births, leaves 142 as the city deaths from disease and accident, which gives a death rate of fourteen per thousand of the population, which is somewhat higher than that of the preceding year.

The higher death rate is principally due to the increased number of deaths from pneumonia this year; mainly due to the after effects of the influenza epidemic of last winter, leaving many lungs in a weakened condition.

In 1918 there were seventeen deaths from pneumonia, and this year there were forty.

Deaths were due to the following causes:

Still and premature births	20	Arterial sclerosis	4
Exhaustion and weakness	16	Convulsions	2
Hemiphlegia	8	Pulmonary congestion	4
Influenza	6	Bowel Obstruction	2
Nephritis	2	Peritonitis	7
Angina pectoris	3	Paralysis	8
Migo-carditis	3	Uremic poisoning	3
Pneumonia	40	Endo-carditis	2
Apoplexy	8	Diphtheria	2
Cancer	5	Cerebral tumor	2
Dropsy	3	Accident	5
Tuberculosis	3		

and one each of the following: Whooping cough, empyema, shock, erysipelas, gangrene, pleurisy, cystitis, bronchitis, neuritis, meningitis, rheumatism, dysentery, appendicitis, purpura hæmorrhagica, heart clod, indigestion, dilatation of heart, and old age.

Communicable Diseases Reported November 16th, 1918, to November 15th, 1919.

	1918.		1919.											
	Nov. 16.	December.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	Nov. 15.	Total.
Whooping Cough	2	2	31	6	3	....	....	....	....	....	....	....	....	43
Impetigo	2	....	....	....	....	....	....	....	....	....	....	....	....	2
Erysipelas	1	....	....	....	....	....	....	....	....	....	....	....	....	1
Chickenpox	....	....	1	....	....	....	....	....	....	....	....	4	8	13
Diphtheria	....	....	....	....	1	....	....	....	....	1	....	2	2	8
Typhoid Fever	....	....	....	....	....	....	....	....	2	3	....	10	....	15
Small Pox	....	....	....	....	....	....	....	....	....	....	3	9	16	28
Mumps	....	....	....	....	....	....	....	....	....	....	....	1	....	1
Scarlet Fever	....	....	....	....	....	....	....	....	....	....	....	....	1	1
Measles	....	....	....	....	....	....	....	....	....	....	....	....	1	1
	2	5	32	6	3	0	0	0	2	4	3	28	28	113

MILK SUPPLY.

During the year the milk was mainly supplied by the Woodstock Dairy Company, which company has a first-class plant for pasteurizing and curing of the milk after being delivered by the producers. The company has not an exclusive privilege as there are four or five private vendors. The private vendors have not the facilities for the curing of milk that this company has.

The dairy milk is invariably No. 1, as to sediment, and up to standard as to butter fat.

The milk supplied by some of the private vendors is low as to sedimentation, but usually high in butter fat.

The Board intends in future to make more frequent inspections of the milk producing herds and byres.

The Board most urgently insists on more care as to the cleanliness of the milk.

MEAT SUPPLY.

Our city meat shops are well kept and supplied with meat chiefly from regular abattoirs.

On the Board's inspection of the slaughter houses, many of the buildings were much below the requirements, and the surroundings poorly kept and improvement much needed.

SANITATION.

The garbage collectors are doing good work but at times they are put to great inconvenience by some householders who are not complying with regulations as to size of barrel or box and always as to having contents free from water.

There are yet too many outside closets in use and which are a menace to the neighborhood—a number have been removed during the year.

As to the water supply—There are some wells on the outskirts of the city, and I would recommend to the Water and Light Commission that they extend water mains to these districts.

The Board is hopefully looking forward to the construction of the intercepting trunk sewer and disposal tanks, believing they will be a great boon to the city as the south trunk sewer has given much trouble during the last few years.

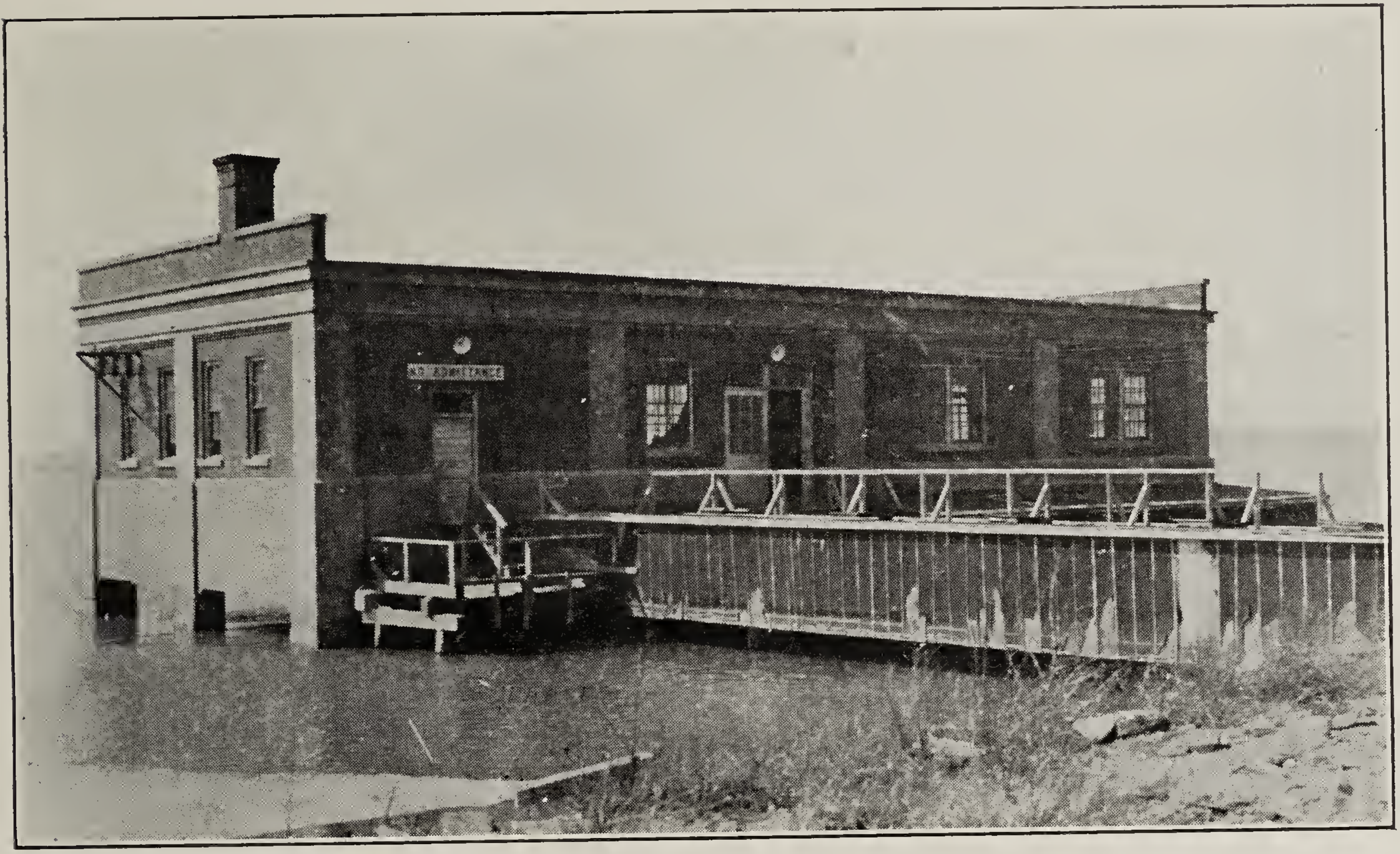
During the months of October and November, the city has had an epidemic of smallpox, which, at this date (November 15th), does not appear to be abating.

I extend my hearty thanks to the members and secretary of the Board for their hearty co-operation in the work.

Respectfully submitted.

ANDREW MACKAY,
M.O.H.

Dated at Woodstock, Ont.,
November 15th, 1919.



Waterworks Pumping Station, Amherstburg Plant, situated above the town and operated by the Brunner Mond Canada, Ltd.

Mechanical water filtration plant, Amherstburg, successfully treating the lower Detroit River.

BALA.

BALA, December 10th, 1919.

REPORT OF MEDICAL OFFICER OF HEALTH FOR THE MUNICIPALITY OF THE TOWN OF BALA.

There is very little to report regarding the health of this municipality during the year 1919. There have not been any contagious diseases.

One thing to be noted was that the common house fly was very numerous during the late summer, and no breeding spots could be found. However, the presence of the flies indicates that livery men and householders must, next summer, be instructed to keep their premises clean.

Nearly all the water for domestic use, comes from the lake and river, and as we had no typhoid fever during the year it is certain that the water is perfectly safe to drink.

I heard of one tourist lady, who has a cottage at Park Beach, going home ill, and it was thought she might have typhoid fever.

I was unable to find out anything definite about this. I intend making an inspection of Park Beach next summer before any tourists come up and I will also send a sample of water to the Provincial Board for analysis.

Everyone left Park Beach before I heard of this case.

The sanitary conditions of the town are improving each year.

A. M. BURGESS, M.O.H.

BARRIE.

BARRIE, DECEMBER 15TH, 1919.

To the Mayor and Council of the Town of Barrie.

GENTLEMEN,—I beg leave to present to you the report of the Medical Officer of Health for the year 1919 and in doing so, would say that the town has been very fortunate during the year in being exceedingly free from contagious diseases. The report of the Medical Officer suggests several matters which should be dealt with by the incoming Board of Health.

I am glad to say that the expenditures of the Board have been kept down and outside of the salaries of the Sanitary Inspector and Medical Officer of Health, amount to less than $200.

All of which is respectfully submitted.

R. A. STEPHENS,
Chairman, Local Board of Health.

BARRIE, November 15th, 1919.

To the Chairman and Members of the Board of Health, Barrie, Ont.

GENTLEMEN,—I herewith present to you my annual report for the year 1919, ending November 14th, 1919.

Apart from the widespread epidemic of influenza our town has been comparatively free from contagious diseases. The influenza, I am sorry to report, claimed many of our citizens. Happily for us we have not had a recurrence of the dread disease this fall.

CONTAGIOUS DISEASES REPORTED.

Scarlet fever	6
Measles	2
Diphtheria	4

We have in course of construction amendments to our milk and food by-laws and by-laws regulating the housing of cattle and other animals. The proper handling of milk is still a difficult problem. Our Sanitary Inspector has made several inspections during the year of dairies and farm premises from which we draw our milk supplies. Many he found in a very unsatisfactory condition, lack of ordinary cleanliness, poor ventilation of stables, faulty construction of floors, unsanitary surroundings. The excuse offered was poor help and insufficient time to make necessary repairs. The withdrawal of licenses will have a salutary effect in producing a remedy. Pasteurization of all milk before reaching the consumer and proper precautions as to the cans in delivery is our only safeguard. Our lake front is still in a very unsanitary condition and we are awaiting instructions from the Provincial Board of Health to solve the matter. Until the town's sewage is properly handled it would be folly to erect municipal boat houses on our otherwise beautiful bathing grounds. With the interest displayed by our citizens in establishing Barrie as a summer resort we as a Board of Health are in hearty accord. If we are to attract tourists we must place ourselves in a position to offer them certain safeguards. A healthy town is our greatest asset. Steady progress along sanitary lines has been made but much remains to be done. The erection of bath houses in localities free from sewage pollution. A better garbage collection, assuring at all times clean and tidy backyards. Clean streets, attractive residences, enforcement of by-laws abating the fly nuisance, clean restaurants. Foodstuffs in stores protected from offensive matter in the form of dust. A better handling of our bread and pastry. Pasteurization of all milk sold in our municipality and during hot weather, morning delivery. Abolition of all cesspools, extension of our sewage system and establishing town water in all parts of the town would go a good way to promote the health of our citizens and attract strangers to our town.

All of which is respectfully submitted.

Dr. A. T. Little,
M. O. H.

Deaths from influenza, 21.
Deaths from tuberculosis, 5.
Births, 140.
Marriages, 70.
Deaths, 121.

Barrie, November 7th, 1919.

Dr. McCullough, Medical Health Officer, Provincial Board of Health, Toronto, Ont.

Dear Sir,—From the year 1907 to the year 1918, inclusive, the Town of Barrie Waterworks Commission have expended for extensions and connections alone the sum of $10,361, and for reservoir, reservoir roofing and cost of piping, about $3,500, for artesian wells in the year 1914, $2,606.05; for turbine electric pump in 1917 and 1918, about $4,000.

I enclose herewith statement for each year, the total amount expended being over $20,600.

These additions and extensions were paid for, or partly paid for, out of the income from time to time and money borrowed on the credit of the Commission. As it was desirous, however, to put the Commission in a satisfactory financial condition a by-law was prepared authorizing the issue of debentures for $10,000, against that expenditure. This by-law has been passed and submitted to the Ontario Railway and Municipal Board for their approval.

The Railway Board advise us that the material submitted to them is in all respects satisfactory except that Section 95 of the Provincial Board of Health Act has not been complied with and they ask us to forward to the Board the original certificate of the Board of Health approving the extensions in question and the source of the water supply.

I have made inquiry and learned that a certificate from the Board for no one of the different extensions at the time of construction was obtained, but same are on a par with the continuation of the previous existing waterworks system.

Kindly send us a certificate to answer the purpose. It may be it will be necessary for you to send a man here to make inspection, etc., before sending certificate. If you deem this necessary we would be obliged if you would send him as soon as possible.

Our own idea is that the Town of Barrie, whose source of water supply is artesian well, has water equal to any municipality in the Province.

Yours truly,

Creswicke and Bell.

1907	For reservoir	$1,617 88	......
	For extensions and connections	......	$480 02
1908	Reservoir roof	263 77	......
	Extensions and connections	......	1,377 36
1909	Extensions and connections	......	1,852 26

1910 Extensions and connections	......	$703 11
1911 Extensions and connections	......	200 88
1912 Extensions and connections	......	1,465 18
1913 Cost of piping, etc.	$389 22	......
1913 Extensions and connections	......	743 29
1914 Artesian wells	2,606 05	......
1914 Extensions and connections	......	590 52
1914 Cost of piping, etc.	450 23	......
1915 Cost of piping, etc.	400 86	......
1916 Cost of piping, etc.	456 07	......
1916 Extensions and connections	......	46 31
1917 Turbine electric pump	3,091 84	......
1917 Extensions and connections	......	603 09
1917 Extensions to hospital	......	2,114 04
1918 Turbine electric pump	979 74	......
1918 Extensions and connections	......	185 00
	$10,255 66	$10,361 06

BOWMANVILLE.

The Provincial Board of Health, Toronto.

Gentlemen,—I herewith present a report of the proceedings of the Local Board of Health of the Town of Bowmanville, for the year 1919, as follows:

January 31st, 1919.

First meeting of Board held on above date.

Members: James Deyman, M.H.O.; B. J. Hazlewood, Mayor Mitchell, Mr. Deyman, Chairman, John Lyle, Secretary.

The M. H. O. being absent, no business was transacted and on motion, the Board adjourned.

March 25th, 1919.

Meeting of Board held on above date, Mr. Deyman, Chairman, presiding.

Minutes of last meeting were read and confirmed.

Dr. Clinton, District M. H. O. being present outlined several matters that should be considered, more especially of sewer connections, doing away with closets within a certain section of the town, closing up wells, testing of well water, etc.

The M. H. O. stated that the Board had the matter under consideration, that a by-law of the Municipal Council had been passed, closing up all wells and dispensing with pit closets within a certain congested part of the town. Sample bottles to contain water for inspection, and the Sanitary Inspector was instructed to get samples, and to proceed with a general inspection.

On motion Board adjourned.

August 12th, 1919.

Meeting of Board held on above date. Members all present. Minutes of last meeting were read and confirmed.

Moved by M. H. O., seconded by the Mayor, that the Secretary be instructed to insert a notice in the local papers, notifying all occupants of property to close up all closets and have backyards cleaned within two weeks after said notice in said section as described in by-law. Carried.

Moved by Mayor McMillan, seconded by M. H. O., that the Sanitary Inspector be paid a salary of fifty dollars per annum for his services. Carried.

Moved by M. H. O., seconded by Mayor McMillan, that the Secretary be paid the sum of twenty-five dollars per annum for his services. Carried.

Accounts were presented from—

Jean Galbraith, services nursing	$56 00
Dr. Hazlewood, medical attendance	$140 00

Moved by Mayor McMillan, seconded by Mr. Deyman, that the above accounts be received and an order be presented to the Town Treasurer for payment. Carried.

On motion, Board adjourned.

November 10th, 1919.

Meeting of Board held on above date. Members all present. Mr. Deyman, Chairman, presiding, and stated that the meeting was called for the purpose of considering the situation regarding smallpox which is prevalent in Toronto and other places.

Moved by M. H. O., seconded by Mayor McMillan, that the Board wait on the principals of the schools and suggest to them certain precautions against the outbreak of smallpox and that a Sanitary Inspection of the schools be made. Carried.

The Board adjourned to visit the schools and on resuming reported the sanitary condition of the schools in good order.

Moved by Mayor McMillan, seconded by M. H. O. that the Sanitary Inspector visit the section specified in by-law and report those not having water and sewerage connection. Carried.

On motion, Board adjourned.

December 18th, 1919.

Meeting of Board held on above date. Members all present. Mr. Deyman, presiding, and stated that the Board has been called for the purpose of taking precautionary steps to prevent the spread of smallpox, of which one case having been reported in the town.

Moved by M. H. O., seconded by Mr. Deyman, that certificates be required from all pupils attending public or other schools in the municipality of Bowmanville of successful vaccination or of vaccination within seven years, and no pupil or student refusing to produce such certificate on demand shall be admitted to further attendance at school until the certificate is furnished. Carried.

The District M. H. O. was present and stated that the Board was taking the precautions to avoid the spreading of smallpox and was satisfied with the way they have been doing.

On motion, Board adjourned.

Contagious Diseases Reported to the Secretary for 1919.

Typhoid fever	2
Scarlet fever	3
Diphtheria	2
Smallpox	1
Measles	1

Respectfully submitted,

John Lyle,
Secretary, Board of Health, Bowmanville, Ont.

Bowmanville, January 9th, 1920.

CORNWALL.

Cornwall, Ont., November 15th, 1919.

To the Officers and Members of the Local Board of Health, Cornwall, Ont.

Gentlemen,—It becomes my duty again, as your Health Officer, to make my report on the sanitary condition of the Town of Cornwall for the year 1919, just closing.

I am pleased to inform you that, on the whole, the year 1919 has been practically free from any serious epidemic, and, with the exception of a rather sharp attack of scarlet fever in the early months of the year, and a similar one at the present time, the town has been practically healthy.

As in former years, a system of sanitary inspection has been thoroughly carried out. An order of the Board has been put in force, which prohibits the exposure, on public streets, of any food material whatever.

Under the direction of the Local Board of Health, a somewhat extensive surface drainage system has been inaugurated in the north-west portion of the town, for the purpose of draining cellars and low lands in the vicinity. This, when completed, will be a great benefit to the citizens in this section of the municipality, as well as removing a large amount of surface water, which, in years by, has accumulated in this part of the town.

I have again to draw the attention of the Board to the absolute necessity of some means being adopted for the purpose of providing for the town an isolation hospital. At the present time, owing to the want of such a convenience, both hospitals are partially under quarantine for infectious diseases, and I have been compelled on several occasions during the summer to apply to the Mother Superior of the Hotel Dieu to allow me to use their private isolation hospital for the care of cases, which, properly, should be looked after by the municipality.

In view of the outbreak of smallpox in Western Ontario, we are liable at any time to have it carried into our own town, and be confronted in the wintertime, as we have in years gone by, by an epidemic, which will cost more money than a building, if properly provided for. I have continually placed this matter before the municipality, but, so far, no action has been taken, and I would recommend that the Board use its influence with the Municipal Council to take steps for the securing of a proper isolation hospital, where contagious diseases could be taken care of.

I have again to express my appreciation of the attention given by the medical men of the town to the Rules and Regulations of the Provincial Health Act, as to the notification of contagious diseases, and I attribute our freedom from serious outbreaks to the prompt notice that has been given to the Health Officer of communicable diseases.

All of which is most respectfully submitted.

Your obedient servant,

(Sgd.) C. J. Hamilton,
Medical officer of Health.

DRESDEN.

To the Mayor and Municipal Council of the Town of Dresden.

Gentlemen,—I have the honour to submit to you my annual report as Chairman of your Local Board of Health, for the year ending November 15th, 1919. I am very pleased to state that with the exception of two cases of typhoid fever reported to your Board of Health your town has been free from any other contagious or infectious disease.

Thanking you gentlemen.

I have the honour to be, Sirs,

Your obedient servant,

(Sgd.) W. Clapp,
C. L. B. H.

Dated this 1st day of December, 1919.

Dresden, Ont., December 9th, 1919.

To the Local Board of Health, Dresden, Ont.

Gentlemen,—I beg herewith to submit my annual report for the year 1919.

One case of scarlet fever was reported in January and one case in February.

Two cases of typhoid fever were reported, one in September and one in October. There have been no other cases of communicable diseases reported and the town has been remarkably free from such diseases.

At the present time the town is free from all communicable disease.

The Sanitary Inspector has made the usual inspections and found conditions generally satisfactory.

Dr. J. P. F. Williams who has filled the position of Medical Officer of Health for several years resigned the position on his removal to Toronto and Dr. H. S. McDonald has been appointed by the Municipal Council as Medical Officer of Health in his stead.

The Medical Officer of Health reports as follows:

DRESDEN, ONT., November 15th, 1919.

To the Board of Health, Dresden, Ont.

GENTLEMEN,—I beg to report that the municipality has been singularly free from infectious diseases during the year 1919. Only two cases of typhoid fever occurred in the town. At present we are free from infectious diseases of all kinds.

Respectfully yours,

(Sgd.) H. S. MCDONALD,
M. O. H.

All of which is respectfully submitted.

J. T. BRIDGWATER,
Secretary, Local Board of Health.

KEEWATIN.

KEEWATIN, ONT., December 12th, 1919.

To the Municipal Council of Keewatin.

GENTLEMEN,—In compliance with the regulations of the Public Health Act, I herewith submit my annual report as Medical Officer of Health.

During the year 1919 there were nine deaths in this municipality as follows:

Two from broncho pneumonia (infantile).
One from influenza.
One from cancer.
One from apoplexy.
One from heart disease.
One from old age.
One from infantile cachexia.
One from drowning.

The epidemic of influenza which began early in the fall of 1918, began to abate about the beginning of the new year, the last case being reported in the month of April.

Since that time there has been no recurrence of the malady, with the exception of one isolated case that occurred during the month of August.

During the year there was but one case of typhoid fever originating in the municipality, and this a school boy aged 13 years who is an only child. This was a serious case running a protracted course and terminated with long convalescence and recovery.

Disinfection and cleanliness were recognized by the attendant, and there was no spread of the disease.

Later in the fall, two cases of typhoid were brought in from a lumber camp.

The cause could be traced to the use of swamp water for drinking purposes, while the men were at work. Both recovered.

During the summer months a lady with two children who had " whooping cough " visited the town, and the disease gradually spread over the whole community, no deaths having occurred, however.

The obstacles in the way of controlling the spread of this disease are:

1. The impossibility of absolutely isolating the patients for the full term of the disease.

2. The uncertainty of diagnosis at the outset in many cases, from the fact that the physician when making his professional visit, seldom sees the child in a paroxysm of cough.

The milk supply during the year has been good. Different tests for butter fat were made during the first part of the season and all specimens were found to be quite up to the standard.

The single case of typhoid and the absence of dysentery would indicate that the drinking water has not been at all bad.

You will recollect that a case of death from cancer was reported last year and another this year.

From the fact that nothing definite with regard to the cause of cancer is known as yet by the medical profession, and as a consequence no specific for its cure, it naturally follows that this is the most dreaded disease known.

At ages of over 40 years, one person in eleven dies of cancer.

At ages of over 40 years one woman in eight.

And one man in fourteen is attacked by cancer with fatal results, according to statistics of our Provincial Health Department. It is neither contagious nor infectious.

We, however, know of certain agents and conditions that exert a direct influence in the formation of cancer.

Constant irritation of any tissue, e.g.:

The lip from a rough pipe stem.

The mouth from a badly fitting plate.

The tongue from a sharp tooth.

The irritation of a mole or birth mark, all tend to the formation of cancer.

X-rays and radium have been used with a small degree of success.

Early operation where feasible affords the only means or hope of cure.

The regular collection and disposal of night soil is a decided improvement on the old system, but the standard receptacle and seat as planned and suggested by the Local Health Board is what should be in use from a sanitary standpoint.

We are pleased to see the Council taking steps towards the building of a new road to the nuisance ground.

When this is completed, the dread of getting mired in the sawdust, spring and fall will be removed.

The water service has been good.

All of which is respectfully submitted.

Dr. Baker, *M. O. H.*

NORTH BAY.

North Bay, Ont., December 15th, 1919.

To the Chairman and Members, Board of Health, North Bay, Ont.

Gentlemen,—Permit me to submit for your consideration and information my seventh annual report as Medical Officer of Health of this municipality.

Communicable Diseases.			1918	
Measles	3 cases,	0 deaths	15 cases	0 deaths
Scarlet fever	4 "	0 "	5 "	2 "
Diphtheria	14 "	0 "	10 "	0 "
Typhoid fever	8 "	0 "	5 "	0 "
Tuberculosis	1 "	0 "	1 "	1 "
Chicken-pox	4 "	0 "	4 "	0 "
Small-pox	7 "	0 "		
Whooping cough	12 "			

Vital Statistics.

	1919	1917	1918
Births	373 (females, 180, males, 193)	332	343
Deaths	161	163	164
Marriages	98	91	50
Population	10,183	9,198	9,500

The deaths are twelve less this year than last year, even with the heavy loss last year due to the epidemic. Influenza accounted for 16, pneumonia for 19, as against 61 in 1918, diarrhoea and enteritis, 17; accidents of births or still-born, 31; heart disease, 28, as against 16 in 1918; accidental deaths, 5, as against 7 in 1918; executed, 1; various causes, 41, same as last year. There were forty-eight more marriages this year than last year. This is probably accounted for by the return of men from overseas. This probable return to the normal number of 91 in 1917, and 94 in 1916, is evidence of readjustment after the war and a satisfactory feature of our community life. There were thirty more births this year than in 1918 and forty-one more than in 1917, but not equal to 1916, when 379 were registered. It is a tribute to the fecundity of our town that our birth rate exceeds our death rate by 212 and if the removals by other means could be stopped it would be but a question of time when we should be seeking incorporation as the populous city of the North Country.

Communicable Diseases.—The number stands this year at 47 as against 41 last year and 72 in 1917. This is again a very satisfactory state of affairs and calls for thankfulness. Apart from the influenza outbreak we had no epidemic, nearly all the cases being sporadic, measles and scarlet fever numbering three each.

Diphtheria claimed twelve cases as against ten in 1918 and 35 in 1917. These were isolated cases and did not occur in groups or epidemic form.

Tuberculosis.—But one case was reported to us and yet three deaths are certified as due to this cause. The deduction is that these cases are not being reported according to law.

Pertussis.—At present there is an extensive epidemic of whooping cough all over the town. This is being propagated by contacts in the schools of the town. I have issued instructions that the children be excluded who have coughs unless they can show certificates that they have had the disease. Those having the disease are allowed to attend school. The Provincial Board of Health is supplying free vaccine in these cases and I have distributed a good deal to the different physicians of the town. This disease can be prevented by vaccination, just the same as typhoid fever, and we would urge a greater use than previously. The treatment by vaccines gives great relief to the little patients in materially shortening the illness and reducing the severity of the paroxysms.

Influenza.—The months of January and February saw the end of the great epidemic and while a few deaths were recorded, yet the town was very fortunate, there being 16 deaths recorded this year as against 49 in October and November of 1918, of which 14 were from outside points. We feel that our town escaped with fewer deaths than most municipalities in Ontario.

Smallpox.—We have had five cases this year. In my last annual report I forecasted that we would be certain to get this disease in our midst and the prediction came true and we are unlikely to escape further trouble unless we resort to vaccination. An investigation of the public school children done by Dr. Campbell at my instigation, reveals the fact that only about 25 per cent. of the children are protected by vaccination, and as it is now nine or ten years since we had an epidemic I feel that it is but a question of time when we shall have one. Prompt isolation of the cases now quarantined has stopped the disease spreading so far, but we are adjacent to areas west on the C.N.R. that have had the disease in their midst the last year and sooner or later we shall get our trouble. The remedy consist in vaccination and the citizens should consult their physicians and avail themselves of the free vaccine supplied to us through the Provincial Board of Health.

Milk and Dairy Inspection.—There were 17 applications for Dairy Licenses during the year, all registering with the Department according to by-law.

These dairies have been regularly inspected and the milk examined for butter-fat and sedimentation tests carried out for dirt. We found these dairies in good shape with the exception of Geo. F. Thorne's, whom we suspended for a period of two weeks. His product was inexcusably dirty and we took this method of getting results as he paid no attention whatever to repeated warnings by the inspector. A marked improvement was soon apparent demonstrating clearly that he was not taking sufficient pains and care in the milking and handling of his product. This vendor stated that his milk was delivered very irregularly and soured rapidly in hot weather, further vindicating our contention. Since this time his milk has been better. During the year, G. C. Smyth installed a pasteurizing plant, making two in town. We now have probably 90 per cent. of our milk pasteurized and this is a great advance in view of the fact that these have been installed on their own initiative and not from necessary legislation by the municipality. This is the only way to prevent bovine tuberculosis from being spread since we have been unable to get the necessary regulations passed by council, approved by the Minister of Agriculture, to enable us to have our herds tested by a competent veterinary from the Department of Agriculture of Ottawa. During the year milk was advanced in price and an extra two cents recently, bringing the price to 17 cents per quart. The Board of Health, by resolution, drew the attention of the Board of Commerce to this, but received little satisfaction. On November 21st, the Board of Commerce issued the following statement which would lead us to assume that we are unlikely to get any relief through anything they can do:

"The Board of Commerce is in receipt of a number of applications on behalf of the various cities and towns objecting to the prevailing prices of milk and to recently-made raises in price.

"Being convinced that the present price level in various localities is the direct result of the high cost of mill feeds, concerning which a price-fixing jurisdiction has been conferred upon the Canadian Wheat Board, the Board of Commerce caused application to be made to the Canadian Wheat Board for a reduction in the selling price of the mill feed in question. This application was refused.

"The Board of Commerce, which has no price-fixing jurisdiction, but instead, a profit-fixing jurisdiction, accordingly finds it necessary to state that it is unable to control the advancing price of milk and milk products, other than by way of supervision of profits of producers and distributors. In the opinion of the Board the affording of real relief lies in other hands. Indeed, its efforts attempted on behalf of the consumer have been resented, and its jurisdiction to concern itself with the matter of milling products has been denied.

"Under the circumstances, hereafter, whenever special application is made to the Board for a review of the various profits of producers and distributors, the Board will, to the best of its ability, and as early as possible after the request, investigate and declare as to profits made, but it can assume no responsibility for the result when and if, after investigation is made, it finds itself unable to declare otherwise than the profits charged are reasonable and just.

"There cannot be cheaper milk until the price of mill feed, such as bran and shorts, is substantially reduced."

Water.—We have sampled the water regularly every month during the year and I am pleased to report that the water has never been as free of pollution as during this year. The bacteriological findings, even in the heat of summer, when we always had evidence of more or less infection, were this year almost negligible. This is an extremely satisfactory situation in view of the extreme danger of pollution from the head of the lake and from resident summer tourists.

Sewers.—The laying of the lateral on Bloom Street and the extension of the trunk sewer to Wyld Street on Worthington now under contract were the only sewers undertaken. We are glad to see this trunk sewer project being extended this year and we trust will finally reach Second Avenue on Wyld where a cross-over from the storm sewer would very easily be effected and this valuable sewer converted into a sanitary sewer, thus serving a very large district and effecting an enormous saving to the town. The gradual extension of this sewer system will slowly eliminate the night soil collection. I regret to report the unsatisfactory service rendered by Contractor Vachon, throughout last year as many complaints were received as to not getting adequate service. In some instances they stated four to six weeks elapsed without cleaning. This is a service that must be efficiently maintained or serious disease will arise and unless great improvement is effected soon drastic action should be taken by the Council. The dumping ground was inspected by myself as in former years and I beg to report that it is being kept in as sanitary a condition as is possible with such a situation.

Suggestions and Recommendations.—(*a*) *A Public Health Nurse.* I have previously recommended under the town's Public Health Department, the employment of a Public Health nurse. In most municipalities of our size and in many smaller, these nurses are at work serving the community in an efficient, advisable way. They interest themselves in child welfare work and the conservation of the infants' and children's lives to the State by visiting the homes and advising mothers as to nursing, feeding, and general hygiene of body and surroundings. They make pre-natal visits where possible and they follow up births as registered at the City Hall and see that the infant is protected against ignorance, want and negligence and save many lives otherwise lost. They are useful in visiting the schools and in examining the children there. They assist in rounding up epidemics and in multitudinous ways aid health officials, physicians and the citizens at large to a better understanding of the laws of health and so conduce to better hygienic conditions of life.

(*b*) *Parks and Recreation Centres.* I am pleased to note that the City Council are moving to secure a park site and agricultural fair grounds. I note one of the sites under advisement is that of Lakeview Park. Let me re-state the suggestion I made some years ago in an annual report, that the land held by the G. T. Ry., near Lakeview Park might be secured for park purposes for a nominal rental, possibly for the taxes. The improvement for park purposes would not interfere with its use for railway purposes should it be required by the railway at some future date. The town would thus have a large area available at a very low cost and if Lakeview Park be bought it would make a very fine addition to the present area. It is worthy of Council taking the matter up with the Grand Trunk officials. The improvement of the Normal School ground site should be continued and a playground for children with supervision as in cities instituted. It would appear that to get our parks and playgrounds on a proper basis with continuity of administration it were wise for the municipality to inaugurate a City Parks Commission. In this way we may hope to get definite results and enable the Commission to enlist the sympathy, co-operation and wealth of the citizens and create a comprehensive park system so much needed in this corporation.

Conclusion.—The Board has undertaken and performed its variable duties throughout the year with a keen desire to be of service to the community and a willingness to co-operate with the officers of the Department. Mr. Tandy has supported me energetically in carrying out the various duties devolving upon us and has intelligently carried out his special duties assigned by myself and town authorities. During the year we have received from the Provincial Board of Health abundant supplies of diphtheria anti-toxins, vaccines and laboratory assistance very freely without cost to the municipality. We have kept on hand for the medical profession the necessary mailing tubes to enable them to send their specimens to the Provincial Laboratory and which has materially assisted in combating disease and aiding diagnosis. Mr. White and Dr. George have freely assisted at all times.

All of which is respectfully submitted.

EDGAR BRANDON,
Medical Officer of Health.

NORTH BAY, December 15th, 1919.

GENTLEMEN,—I beg to submit report of work done in this Department for the year 1919. The following gentlemen constituted the Board of Health: Thos. Wallace, Chairman, Jas. Fallon, L. W. Wilson, Mayor Ferguson and Dr. E. Brandon, M.O.H. The Board met on ten occasions, and worked very amicably together, dealing with all business brought before it in an expeditious and efficient manner.

SEWERS.

Very little work has been done in the construction of sewers this year. A section of trunk sewer on Worthington Street, from Sherbrooke to Wyld Streets, will relieve a long felt want in this part of the town. Also a section of sewer has been laid on Bloem Street, which will relieve a very unsanitary condition of things existing there, and which, on various occasions, was requested to be laid by the Board of Health. The section of sewer laid on Cassells Street, should also relieve a congestion which existed there.

PLUMBING.

Very few applications have been made for plumbing permits, twelve in all, for new installations, at a cost of some $5,000.00, and a number of alterations to existing plumbing work have been done. All of this work was duly inspected and found to be done in accordance with by-laws.

COMMUNICABLE DISEASES.

The number of cases reported this year is slightly in advance of last year. The more noticeable are: 12 cases of smallpox, 10 cases of typhoid fever, 4 cases of scarlet fever, 3 cases of measles and 12 cases of diphtheria, with only two deaths from typhoid fever in all. All the cases were duly quarantined and premises disinfected on release of patients.

GARBAGE SYSTEM.

The garbage collection was carried on by the town team and men as in former years, until June, when the work was let out by contract to Mr. Devine, under tariff charges as formerly adopted by the town.

The charges in some cases were very low and did not pay for collection, and the tariff was amended to cover this. As reported in former years, the present method of collection is very uncertain and no doubt the better method would be for the garbage collection to be covered by the taxes. We would then be in a position to collect garbage that otherwise is disposed of by means of burying or other unsanitary ways.

The dumping ground has been periodically visited, and is in a similar condition to former years. The Township of Widdifield have notified us that this ground must be fenced, and a letter has been sent to them, asking them to meet a deputation of the Board of Health, to point out what is required, which will be placed before the Council of next year.

NIGHT SOIL COLLECTION.

This work is operated as last year on a contract basis, and is let to Jos. Vachon, who holds a contract for one year from May 1st, 1919, to April 30th, 1920, at a cost to the town of $250.00 per month, being $10.00 per month less than former contract.

We have had far more complaints from citizens regarding the service this year, and to my mind, the Council would be wise to select a contractor who would give better service, if it entailed giving an advanced price for this work, as there are upwards of 900 outside closets in the town, and these, according to contract, should be attended to twice monthly. In addition to this, the contractor has to collect the night soil from Trout Lake, 17 or 18 times yearly, under an agreement between the town and Widdifield Township.

The cans purchased last year were of an inferior quality, and the attention of the firm supplying them was called to the fact. Their reply was that the iron supplied last year was of an inferior quality although at a greatly advanced price. A considerable number of cans will be out of commission this year, and at least 300 new cans will have to be ordered to replace them.

WATER SUPPLY.

Our water supply from Trout Lake has been exceptionally good this year, and the samples sent out each month have proved on analysis to be better than last year, showing a marked improvement during the summer months.

DAIRIES.

Periodical visits to dairies have been made both in the town and at outside points of supply. Various alterations have been requested and complied with, to make the cleanliness and quality of the produce of a better standard. Mr. Smythe has installed a pasteurization plant this year, which helps to give the consumer a much safer and commendable supply.

The tests made for butter fat and sediment compare very favourably with last year.

MARKET.

The market has been visited on usual market days, and a very marked improvement has been made this year in the market building, which has done away with the overcrowding formerly existing, and the meat is now being handled in a more sanitary way. Great credit must be given to the Market Clerk for the greatly improved manner in which the buildings are now being kept.

Three persons were summoned before the magistrate for peddling unsound fruit, and fined.

A rough summary of the work would be:

Plumbing inspections	24
Serving notices to abate nuisances	250
Receiving and adjusting complaints	920
Letters received and answered	150
Inspections of dairies, etc.	50
Tested samples of milk	150
Garbage accounts made up	600
Collected garbage accounts	$794 00
Recorded Contractor Vachon's reports.	
Records of work done and office work connected with the Board of Health.	

In conclusion, I beg to thank the members of the Board for their kind consideration and helpfulness in carrying out the duties and also my thanks are due to Dr. Brandon, M.O.H., for very practical help, and I have at all times found our Provincial Officers, Alex. White and Dr. George, ready and willing to give me any assistance required.

All of which is respectfully submitted.

Yours truly,

ALFRED TANDY,
Secretary, Board of Health.

ORILLIA.

ORILLIA, December 9th, 1919.

To the Chairman and Members, Orillia Board of Health, Orillia.

GENTLEMEN,—In compliance with the requirements of the Public Health Act, I herewith submit to you the annual report of matters pertaining to the public health of the Town of Orillia for the year 1919. At our regular monthly meetings I brought to your notice the various problems demanding your consideration and the proceedings taken by me under your instructions and the Public Health Act.

MILK SUPPLY.

In company with Chief Inspector Reid I paid a visit to all the dairies supplying milk to the town, and found that they all evaded that portion of Clause 5 of the Milk By-law requiring that no other animal shall be kept in the stable with milch cows. Fair warning was given that such a condition would not be allowed to continue. Following up these instructions, Chief Reid and myself made an inspection a short time ago, and I am pleased to report that all had complied with the by-law but one, and he promised to remove the other animals without delay. Tests made at regular intervals during the year showed the milk to measure up to the standards required by the by-law. The importance of cleanliness in handling and storing milk cannot be overestimated. On this account I trust the dealers will exercise the greatest care and obviate the necessity of insisting upon all milk being pasteurized.

MEAT SUPPLY.

Frequent inspection has satisfied me that all the butchers doing business in town keep their premises clean and sanitary, and honestly endeavour to store and deliver their meat by up-to-date methods. Most of their stock comes from Toronto, where all animals are examined before being slaughtered, but a small portion is procured from wholesale butchers in neighbouring municipalities, without proper inspection. I would advise your Board to require from these dealers satisfactory evidence that their stock is free from disease.

I also endeavoured to enforce the regulation providing that all articles of food liable to contamination from flies, dust and germs from any source, must be covered and protected from such contamination.

SEWERS.

During the season Mr. J. J. Hatley, Chairman of the Sewer Committee of the Town Council, was indefatigable in his efforts to keep the system in good working order. There was a good deal of trouble at the pumping station and with the main pipe, but I am assured that all the defects have been corrected, the weak spots strengthened, and no further danger need be anticipated. Our solicitor advised us that we cannot compel property owners to connect up with the sewers under the present by-law, and I would suggest to your Board to ask the Council to amend the by-law so as to give you power to do so.

Hitherto you have not enforced the by-law regarding plumbing and drainage, but I think it would be well to do so from this time forth.

COMMUNICABLE DISEASES.

Diphtheria has been somewhat prevalent this year, but not in the form of an epidemic. It is generally conceded that the disease spreads by contact, and this being the case, quarantine has been strictly enforced. Only one death occurred, which proves the efficacy of anti-toxin when administered in time. In the fatal case the physician was called in when the disease was too far advanced.

Smallpox.—On the 6th of November I discovered that there were many cases of this disease at the Ontario Hospital for Feeble-minded, and that the infection came from Toronto. I recognized the danger to the people of Orillia, and in order to take the proper preventive measures I telephoned Dr. Clinton, District M.O.H. He responded promptly, and while here consulted the Board of Health, Board of Education, and the Principals of the schools. It was unanimously agreed that the teachers should be requested to intimate to the children and their parents the advisability of having all the pupils vaccinated. This request has been generally complied with, the majority of the children have been vaccinated. Your Board has not yet deemed it necessary to make vaccination compulsory. Miss Cannon, the school nurse, was of great assistance and did excellent service among the children. Not one single instance of blood poisoning, or other trouble, has been reported from the vaccination. It was on the 10th November that the first case of smallpox was reported to me. Dr. Clinton was present and a diagnosis was made. Quite a number of cases have been discovered since, and all have been quarantined. Some have fully recovered and have been released. While there have been no fatalities from this disease there have been some very severe cases, and it is absolutely necessary that the very greatest precautions should be taken to stem the spread of the disease, and I earnestly ask the co-operation of the Board, and of every citizen.

Typhoid Fever.—Two cases were reported during the year, both of which came from outside points. This shows the purity of the town drinking water.

Only three cases of scarlet fever were reported, and these were of a very mild type. No other communicable diseases were reported during the year.

All of which is respectfully submitted.

(Sgd.) JNO. MCLEAN, M.D.,
M. O. H.

OSHAWA.

OSHAWA, November 25th, 1919.

Dr. T. W. G. McKay, Medical Officer of Health, Oshawa.

SIR,—I beg to submit my report for the year 1919, dating from my re-appointment on August 11th, 1919.

The following statistics are compiled from the assessor's roll and the registers kept for such at the Town Hall.

	Population.	Births.	Deaths.	Deaths of infants under one year.
1918	9,748	252	213	53
1919	10,074	231	110	31

The increased population of the town is evidently greater than officially recorded, as the housing problem becomes more acute even now that many more houses have been constructed, and, numbers of families, and men temporarily employed here, are living in shacks, and partly built dwellings, where they escape the notice of the official recorders.

The number of births registered, as shown above, should not be understood to be a decrease, as the total was compiled within a month and a half less than the full year.

The decrease in deaths may largely be attributed to the freedom of the town from any deadly epidemic such as the Spanish influenza last year.

It has been impossible to make that which is most essential, a sanitary survey (house to house inspection) owing to the number of complaints received requiring immediate attention, and also the number of houses under construction in which the plumbing system had to be inspected and tested.

A general survey of the town showed much to be desired, streets, such as Albert, Bruce, Colborne, Drew and many others, are in an exceedingly bad state, mechanical and horse traffic only make use of them when compelled to do so, and it has been brought to my notice that jitney drivers will not answer a call from some of the streets, classifying them as impassable, and detrimental to their machines.

Unpaved streets in the town have always been more or less a nuisance, and inconvenience. The grading done this year by the contractor responsible, has been such as to be unnoticeable.

The practice which was condemned four years ago, i.e., carrying the rain water leaders from private dwellings across to the branch of a tree and there allowing the rain water to pour down into the gutter and road, still continues in many of the older houses, steps are being taken to abolish this nuisance.

It is gratifying to know that the town intends that a public park be located near the centre of the town, and the project should be encouraged as, apart from the beautifying effect, it fulfils the duty of a municipality to supply open spaces whereby citizens can have natural air and unobscured sunshine.

Schools, except the Separate and High Schools, have been inspected, and reports submitted upon their condition. The appearance of smallpox in town has prevented these two schools from being inspected owing to the excessive work which that disease places upon the Health Department.

One hundred and forty building permits have been issued for dwelling houses this year, and 114 plumbing installations have been inspected and tested, many of these call for two and three visits.

Twelve unsanitary privies have been abolished and plumbing fixtures installed.

Two dwellings were condemned as unsanitary, and a prosecution was found necessary in one case, both are now in better sanitary condition.

All yards in the business section of the town were regularly inspected, and proper garbage receptacles insisted upon, one prosecution was necessary to enforce the garbage by-law.

Sixteen notices were served for the cleansing or removal of unsanitary privies, and were complied with, it was difficult to obtain plumbers for the purpose of installing sanitary conveniences, otherwise all unsanitary privies would be removed.

Eighteen samples of the town water supply were taken and the analysis shows it free from contamination, which may be taken as an indication of the efficiency of our drifting sand filter and its power of protecting our citizens from water borne diseases, provided that we do not overwork, or abuse it.

Meat Supply.

Affidavits are up-to-date from all butchers for the supervision of the meat supply. All butchers' stores have been inspected, and it is found that a large percentage of the meat is received from reputable firms.

Inspection of meat in the stores is not a reliable manner of inspection as diseased parts may be removed previously, supervision in an abbatoir is the only reliable method, the whole carcass can then be seen.

Milk.

The principal dairies have been inspected, and inspection of the smaller dairies has been purposely delayed, to ensure that they have sufficient time to comply with the recently introduced Model Milk By-law.

Fruit.

All fruit stores have been regularly inspected and the amount of fruit condemned has been small, repeated visits were necessary, owing to the practice of placing fruit and vegetables on the sidewalk and doorsteps, this practice must be strongly objected to, as the fruit and vegetables so placed are exposed to all filth blowing about, and dogs readily contaminate them, the public should refuse to purchase any uncovered fruit, and any vegetable or fruit which is stacked upon the sidewalk, floor, or doorstep.

General Stores.

These were inspected and found satisfactory, excepting in the south-east quarter of the town, here canned goods and other foodstuffs were condemned.

Communicable Diseases.

Reported for the year are as follows:

Scarlet fever	13	(2 deaths)
Tuberculosis	2	
Typhoid fever	5	
Measles	62	
Diphtheria	4	(1 death)
Erysipelas	2	
Smallpox	4	
Chickenpox	4	
Total	106	

It must be presumed that many cases of communicable diseases, such as measles are not reported, this fact has been proved owing to the disease being found in several houses where no medical practitioner was in attendance.

The presence of, and threatened spread of smallpox in this municipality has up to the present given no cause for alarm, and arrangements are made whereby the disease may be dealt with, should it unfortunately become epidemic owing to the extreme mildness of some of the cases, extra watchfulness will be required of everybody to prevent the spread of this disease.

I am, sir,

Your obedient servant,

F. C. Palmer,

Sanitary Insp

OSHAWA, November 26th, 1919.

To the Chairman and Members of the Board of Health.

SIRS,—Having delegated to your Sanitary Inspector the duty of an itemized report of the inspections and other public health works done in the town the past year. I desire, myself, to call attention to the really efficient way in which he is carrying out his official duties, particularly when having commenced his labours in the middle of the year he found many things to be done and a town in the throes of an industrial and housing building development undreamed of by "the oldest inhabitant."

Personally, I am very satisfied with the painstaking, conscientious, fair way in which he is performing duties, which are too often made unpleasant, thoughtlessly though it be, by the people with whom he comes in contact.

I anticipate, next year, will prove our Board of Health the liveliest of all the municipal departments.

The unprecedented demand for labour at a high wage, along with the high cost of materials, has hampered the inception and carrying out of many municipal improvements. A highly creditable work is being carried out by the Board of Works in placing storm sewers on the streets in the central area of the town, previously unprovided with the same, and in commencing the laying of cement pavements on the central lateral streets of the town. This work will, when completed, materially improve the sanitary conditions of the business section of the town. Very large installations of sewers and water mains are in process of construction to provide for the new-growing areas of the town.

Our rapid growth toward cityhood is increasing our sanitary problems enormously and as solution of such problems is always dependent on financial power to carry it out we cannot get at once all the things which are necessary but only piece by piece, taking the most urgent demands first. These undoubtedly are the building of many more hygienically and sanitarily constructed houses of moderate cost provided with water, sewerage, electric light and power, and transportation facilities (i.e., sidewalks and good roads) and intended to provide each family with a "home" of its own. The *individual home* with its contained family is the most important unit in our State. The Municipal Council is struggling hard to cure the troubles associated with the town's "growing pains."

A very necessary adjuvant to the present solutions now being worked out will be the extension, expansion and improvement of the present system of garbage and refuse collection, together with a settled policy of the methods of disposal of these wastes and a fixation of locations at which such disposal of garbage and waste may be safely and satisfactorily carried out to the requirement of the best interest of the town and of the Public Health Act. This matter is of such importance it merits a memorial from your Board to the Municipal Council.

On pain of inviting unkind remarks I would again call your attention to the advisability of a determined effort being made to solve the question of the best disposal of the discharges from the outfall sewer. The present discharge if untreated and incompletely converted sewerage, which is steadily increasing in volume, will soon be greatly increased when the new housing programme is completed. This output of crude sewerage is a constant source of worry in the potentialities it contains of fouling our present waterworks intake and putting too much strain on our filters and even overcoming their efficiency. It would be a very sorry neglect of precaution to render untrustworthy or inefficient the most valuable business asset, from the viewpoint of public health, which we possess. I mean our supply of clean, pure, wholesome, *drinking water*. The town is to be sure interested in water for fire protection, industrial, and municipal use, but your Board is specially concerned with the present and continued purity of the domestic water supply.

While the demand for storm sewers, sanitary sewers, water mains, etc., is great in the new upbuilding parts of the town, it does not do to ignore the claims of those other and older parts of the town unhappily situated for hitching-up, at present, to our water mains and our sanitary sewers.

Houses, and especially *homes* are our greatest need, they exist in these parts of the town and though some may be old or not very modern they all are habitable and inhabited. As taxpayers, the owners or tenants, should be, from the necessities of healthy living, provided with the necessary sidewalks, well built and well kept up roads, clean, efficiently acting ditches and gutters, with the necessary storm sewers and drains requisite to produce clean and dry surroundings. Every effort should also made to provide these districts with town water, and, as soon as a satisfactory me can be worked out, with sanitary sewers, so that these long suffering citizens njoy the sanitary benefits of modern ideas in living and household comfort.

There are conditions of defective storm water drainage in some of these areas which have been overlooked but should be cleaned up before winter is upon us.

The Inspector in his own report to you will prove to you how great have been the demands on his time and that things he would like to have done have been let go by. Plumbing inspection has rightly been held to be the most important work of the present time and has been well looked after. The impossibility of finding time for a complete sanitary survey, a thing so badly needed in this town, has been laid before you. The causes operating to hamper this work in being done are cumulative and will be greater next year than this and will remain so until the necessary housing relief, for the speedily increasing population and for the homes already packed to an insanitary limit, has been secured.

I would imagine this congestion of housing to be likely to last at least two more years. This congestion of the homes, with people, demands a watchfulness for the outbreak and care of communicable disease, in the community, which we are at present absolutely unable to give. It endangers also the best development of the growing children, not only from the viewpoint of air space, unpleasant surroundings, increased contact with other possibly diseased, individuals, but also from the aspect of its mental and moral influence on the child, in its formative period, generally much to be deprecated. Moreover, rigid watchfulness of the children in our schools is more than ever necessary to obviate the danger of epidemic diseases getting a foothold in the community.

Your Board has, to my mind, here a very important guiding and educative duty before it, as well as one of simply waiting till something happens. Remember also the School Board's nursing supervision extends only to the public schools and not to the high school, separate school, private school, commercial school, night school or denominational colleges. Besides this also the school nurse's work is, at present, suggestive, only rather than complete and entails as yet no follow-up work, well done though as is the work already being performed. The necessity of the school nurse's appointment being by the year and full time is a matter you can properly lay before the Board of Education.

To meet our own difficulties, to secure an adequate sanitary survey of the town and of its homes, to reach a capable and intelligent understanding of the insanitary conditions many of the people labour with, to appreciate their inability to either cope with or understand even, these conditions and their dangers, to be able to trace out contagious disease and arrest its development, and extension, to give needed advice for the fostering and bringing up of infants and the younger children, as well as to help mothers to a better understanding of how to care for their families' development, we need a special type of Sanitary Inspector, and that a female who should be a trained nurse. She can be immediately put to work, and will find plenty to keep her busy, even if she worked twenty-four hours a day, month in and month out.

In reference to the communicable diseases I would like to say there is still a considerable part of the population which has not grasped its social duty to the State in the matter of reporting contagious disease. People are apt to forget this duty is incumbent on them, not so much for their own benefit as for the greater duty: *The protection of others*. They rather resent the idea of letting it be known that a contagious disease is present in their household, fearing a stigma attached, or a hampering of their working interest, or worse, an interference with their enjoyment of pleasures; especially do they resent the placing of a placard on a house.

I believe whooping cough has been widely prevalent this year, with little or no care being taken to prevent its spread and absolutely no reporting of cases. The reporting of chickenpox has been more honoured in the breach than in the observance of the Act. Mumps have been prevalent and also unreported. Itch is a thing to be concealed from your friends and denied if found out. Lice must be ignored or blamed on someone else. It is not likely all nor half of the tuberculosis disease has been reported. If they are "closed" cases that is not so bad, but "open" cases may be a great menace to other people, particularly since the disease is so insidious in its development. Diphtheria has probably all been reported, except a few mild cases of doubtful diagnosis, which one can excuse people confusing with simple sore throat. The great point overlooked by most people is that there are very few really "simple" sore-throats. Almost all sore throats indicate the presence of a communicable infection which, while mild in one case may be very severe in the next.

Influenza of the older type has been common this fall and not reported. The regulation as to its being notifiable is a recent one and as yet not commonly known. No "Spanish flu," so-called, has been reported.

Measles have been a rather severe outbreak and perhaps not half the cases have been reported. Many people do not yet know it as a notifiable and placardable disease.

Probably the chief cause of dilatoriness in reporting contagious disease, and the great failure to effectively look after the afflicted persons and safeguard others, is the delusion "it is only a mild attack" combined with a lack of the special knowledge which understands, that, what seems superficially a very mild affection, may produce very serious effects on internal organs and their functions, as well as produce a much severer form of the complaint in the next person afflicted. Here again is where the educative influence of a public health nurse would be an untold advantage.

T. W. G. McKay,
M. O. H.

PAISLEY.

Paisley, Ont., December 15th, 1919.

Annual Report of the M. O. H. for the Year 1919.

In accordance with the requirements of the Public Health Act, I have the honour to present to you my annual report.

It is very gratifying to state that the health standard and the sanitary condition of our municipality during the past year have been very satisfactory, only one case of communicable diseases having been reported.

Our milk and drinking water supplies are good. A sample of water from our school well was submitted for analysis at the beginning of the autumn school term. The report on the analysis was favourable.

A short time ago the attention of our Council was called to the fact that the scavenger was disposing of the night soil from closets by merely dumping it on the nuisance ground without covering it. This is contrary to the Health Act which requires that it be covered with earth. It was promised that the matter would receive attention. These same complaints have come to us on several previous occasions. We recommended that the Council take such action as will prevent their recurrence.

By the blocking of an old drain, a low piece of land near the corner of Queen and Church Streets became flooded. This in time created a nuisance and was a menace to the health of those living in the immediate vicinity. The Board of Health notified the Council that the nuisance must be removed. As a satisfactory solution of the matter could not be arrived at by local arbitration, the Council on legal advice proceeded under the River and Water Courses Act. The advice and assistance of an engineer were obtained. He directed the course for a new drain and made the award by levying seventy-five per cent. of the cost of construction on the municipality and the balance of twenty-five per cent. on the individuals immediately concerned. The award was not wholly satisfactory, but as no formal appeal was made the drain was built and the nuisance disposed of.

Speaking generally, our citizens are co-operating with our Local Board of Health to make our village healthy.

H. E. Gage,
M. O. H.

NORTH MONAGHAN TWP.

Peterborough, Ont., December 13th, 1919.

Doig, Herb., North Monaghan. Served notices all scavengers to have night soil taken to the proper dumping ground.

Doig, J., North Monaghan. Served notices all scavengers to have night soil taken to the proper dumping ground.

Oxley, Mr., Braidwood Ave. Conditions were satisfactory.

Payne, Mr., Braidwood Ave. Outhouse cleaned and box put in, otherwise satisfactory.

Turner, Mrs., Braidwood Ave. Complaint of ashes being dumped in laneway behind her house, otherwise satisfactory.

Wright Bros., North Monaghan. Served notices all scavengers to have night soil taken to the proper dumping grounds.

Visited these places during the night and waited until they came in and found their wagons empty.

Visited Mays School and had the lavatories cleaned and disinfected with chloride of lime.

Have had no complaints lately and the conditions in general are satisfactory at present.

Called on Wright Bros., was accompanied by M. O. H. Dr. Greer, and found conditions very bad. They were served with second notice forbidding them to bring night soil on their premises whatever, and if caught doing so would be prosecuted. So far have no further conviction. It was a very difficult matter to handle and to get them to comply with the rules of the Sanitary Inspector without applying to the law.

(Sgd.) W. T. Henry,
Sanitary Inspector, North Monaghan.

Peterborough, December 11th, 1919.

The North Monaghan Board of Health.

Gentlemen,—I beg leave to report that during the year, health and sanitary conditions in the township have been satisfactory. The only cases of contagious diseases reported, were, four of diphtheria and two of typhoid fever. The source of infection in the typhoid cases seemed, very probably, to the Otonabee River, where both victims went in bathing frequently. This fact points out the very urgent importance of an immediate change in the sewerage disposal for the City of Peterborough.

The continual contamination of the water in the river, is an increasing menace to the public health of the district, and any further delay in a satisfactory settlement of this problem, should not be tolerated.

Very few complaints of nuisance have been received and the work of the Sanitary Inspector in this regard has been light.

The Board of Health has held the usual statutory meetings during the year, and has kept in close touch with matters pertaining to the public health.

Respectfully submitted,
T. Newton Greer,
M. O. H.

PORT HOPE.

Port Hope, November 15th, 1919.

To the Chairman and Members of the Local Board of Health, Port Hope, Ont.

Gentlemen,—Herewith I am pleased to present for the consideration of the members of the Board my reports for the year 1919, viz.:

Report on the Inspection of Milk.
Report on the Analysis of Water.
Report on the Inspection of Slaughter Houses.
Report on the Inspection of Restaurants.
Report on Child Welfare.
Report on Infectious Diseases.

I have tried to make each report as full and as complete as possible without having it unduly long. But in this connection I would point out that it is almost impossible to give in detail all the work done under the several items, and I am sure that the members of the Board will desire fuller information on some of the subjects dealt with in the reports, and I shall do my best to answer fully, any question you may think to ask.

All of which is respectfully submitted.

Yours truly,
(Sgd.) Geo. A. Dickinson,
M. O. H.

Report on the Inspection of Milk for the Year 1919.

During the year 1919 I have made a regular inspection of the dairies and the dairy farms from which Port Hope receives its milk supply, and each month during the year milk samples taken from the principal vendors have been examined for percentage of butter fat. Following is the average for each month, viz.:

December	3.30	June	3.30
January	3.15	July	3.10
February	3.09	August	3.24
March	3.12	September	3.28
April	3.33	October	3.33
May	3.35	November	3.30

The average for the year was 3.20 per cent. of butter fat.

The average for the large vendors was, viz.:

W. J. Highfield	3.24	J. Sinnett	3.19
W. Lingars	3 22	W. C. Hugh	3.16

Sixty-eight samples were examined with the lactometer for watering and skimming, and the same number were examined by the Babcock test for percentage of butter fat. The same number were examined for dirt sediment.

It will be noted that the percentage of butter fat is much lower this year than it has been in years past. This is doubtless owing to the fact that the dairy herds are now mostly Holstein cows, while they were formerly made up of Shorthorn and Jerseys. The reason for the change is that the Holstein breed of cows are good milk producers. Cows of this breed have been known to produce more than fifty quarts of milk in a day. The average dairy Holstein gives from fifteen to twenty quarts of milk per day while the cows of other breeds will give from six to twelve quarts in a day. It is a popular belief, and is probably true, that the Holsteins are the most profitable breed of cows for dairy purposes. They are also said to be very healthy, but the percentage of butter fat in their milk is very low, being as a rule not more than three per cent.; but they make up for this in yielding a milk that is rich in other constituents. While the milk from Jersey cows is rich in butter fat, being on an average probably about four per cent., it is generally thought that it is more apt to contain tubercle bacilli than the milk of other breeds, and is thus more liable to cause tuberculosis in those who drink it unboiled. In Port Hope several cases of consumption have occurred in which we were quite certain that the disease had resulted from using raw milk. In the case of one family who owned a Jersey cow and who had taken the milk unboiled, three members of the family suffered from consumption and two of them died. The safest plan is to drink no unboiled milk.

As previously reported to the Local Board of Health, one sample of milk was tested in the month of March that showed only 2.90 per cent. of butter fat. In the month of September another sample was received which showed the same per cent. of butter fat. Both samples were one-tenth of one per cent. below the standard as set by the Milk By-law, but the lactometer reading did not point to watering or skimming in either case, and I do not think either of the samples was adulterated. When these low samples were found, in order to make sure that an error had not been made, in the test, some additional samples were taken from the two vendors but we did not find another sample below the three per cent. standard.

When we consider the fact that the Ayrshire, Shorthorn and Jersey cows are being replaced by Holsteins in the dairy herds, it is not to be wondered at that we have samples of milk that show less than three per cent. of butter fat, as milk from the average Holstein cow in this locality, it is said, does not show more than three per cent. of butter fat, and good Holsteins may produce milk showing a lower per cent. of butter fat.

It seems to be quite a popular belief that the Holstein is the best cow for dairy purposes and dairymen are being urged by the dairy papers, and by the officials of the Department of Agriculture and other experts to get rid of the poor milkers, or as they call them " boarders " and replace these by profitable milk producers.

Not many years ago there were very few Holsteins in this district, at the present time there are a number of good dairy herds made up almost entirely of this breed, and it seems most probable that in a short time the Holsteins will have replaced all other breeds as dairy cattle and with the change we will be able to get only Holstein milk. And we may expect our tests to show an increasing number of samples of pure milk that will fall below the standard as set by the Milk By-law. This is a question that should be given very careful consideration by the Board of Health.

The health of infants and children, to a very great extent, depends upon the purity of the milk they use. And a low death rate among children points to a good milk supply, and to efficient public health work. In this respect Port Hope is very favourably situated, in that, during the year 1916 we had a lower death rate among young children than any other town or city in the Province of Ontario. And if all the other municipalities in Ontario had done as well as Port Hope there would have been a saving of 4,846 lives in the year 1916, in Ontario.

Report on Town Water for 1919.

During the year many samples of town water have been taken and sent to the Laboratory of the Provincial Board of Health for analysis. The results of these examinations are then sent direct to the Sanitary Engineer of the Board who scrutinizes the findings and in case a sample shows pollution, or any unsatisfactory condition he takes steps to have the matter remedied. I also get a copy of the reports as they are made by the bacteriologist and in case any unusual condition is noticed by me, I bring the matter to the attention of the proper official of the Provincial Board. I do this as a precaution against their overlooking an unsatisfactory condition. The officials of the Board take whatever action may be necessary to improve conditions.

The principal diseases caused by a contaminated water supply are: typhoid fever, cholera, dysentery and diarrhoea, and it is important that there should be careful supervision over public water supplies. Port Hope is very fortunate in having a good water supply. And we are very free from water borne diseases. During the past year not one case of typhoid fever has occurred in our town, and for the seven years from 1913 to 1919, inclusive, there have been only two deaths from typhoid fever, while from the ten years, 1903 to 1912, inclusive, there were twenty deaths, an average of two deaths a year. This is a considerable saving of human lives or, to put the matter in another way, during the time from 1903 to 1912, there was an estimated loss to our town of $7,100.00 a year through typhoid, since 1912 there has been a loss estimated at only $900.00 a year. We had one death in 1916, and one in 1913, and since 1916 no deaths from typhoid fever.

REPORT ON INSPECTION OF SLAUGHTER-HOUSES.

I have inspected several times, during the year 1919, the slaughter-houses owned by the following, viz.: W. C. Greenaway, C. Hutchings, George Perrin, Gardener Bros., Thomas Roberts.

On October the 16th, the District Officer of Health, Dr. Clinton, and myself visited several of the slaughter-houses and we made a thorough inspection of the premises. Dr. Clinton expressed himself as quite satisfied with the conditions of some of the places visited. In one instance he thought that greater improvement should have been made since his last visit and instructions were given to have all the necessary improvements and changes made.

INSPECTION OF RESTAURANTS.

Under the provisions of By-law No. 1195, the following restaurants were inspected in the year 1919, viz.: Edward Broadbent, George Haggis, Ernest Barber, Lem & Company, William P. Tickle.

In all these restaurants the conditions found were very good. Suggestions were made to some of the proprietors where it was thought that improvements might be made.

In my 1918 report on the inspection of restaurants it was stated that the term "sanitary appliances" was rather indefinite, and it was suggested that a section be added to the by-law defining the meaning of these words, so as to make the by-law quite clear. Again in Section 5 of the by-law the words "that the sanitary appliances . . . . are suitable." The question arises, what are to be considered suitable sanitary appliances?

A reference to my 1918 report on the inspection of restaurants will more fully explain my meaning.

CHILD WELFARE.

Child welfare is a very important branch of public health work, and in the Province of Ontario the supervision of this work is under the direction of Miss Power, an official of the Provincial Board of Health.

The good that can be accomplished in this department of health work is limited only by the amount of money that is spent.

By instructing the expectant mother in regard to proper clothing, food, exercise, etc., by giving her directions and printed instructions on the care and feeding of infants much sickness may be prevented and many lives may be saved.

The stomach and bowel troubles which are so prevalent among infants and small children in the summer months are, in a very great measure, preventable.

In municipalities where proper efforts are made to combat these infantile diseases the public health authorities are able to show a greatly reduced infant mortality, in some cases amounting to as much as thirty-five per cent. And wherever the work has been properly carried out the results have been most gratifying in a lowered death rate.

Some of the main causes of infant mortality are, viz.:

(1) Lack of health knowledge on the part of the mother.
(2) Improper feeding and clothing of infants.
(3) Improper care of diapers and clothing of the infants.
(4) Artificial feeding of infants.
(5) Poor quality of milk and improper infant foods, etc.
(6) Infectious diseases.

As will be seen these causes are in great measure preventable.

Child welfare work in Port Hope has up to the present time been done with the co-operation of the nurses of our hospital, who have given their services gratuitously. We can no longer depend upon this free service. The Local Board of Health has every authority to pay for necessary nursing service. And if they engage this service they will have the hearty help and approval of the Bureau of Child Welfare and the Provincial Board.

I offer these suggestions for the consideration of the Local Board.

Report on Infectious Diseases.

We have not had any epidemic during the year 1919. Reports of thirty-eight cases of communicable disease have been received during the year, these being made up of diphtheria, whooping cough, tuberculosis and venereal diseases. The majority of the cases reported were venereal diseases. There were no cases of scarlet fever or measles reported.

The law in regard to the reporting of venereal diseases was only passed in the year 1918 and there has been some little difficulty in carrying out the provisions of the Act, but it is hoped that in time we will succeed in getting the law fully carried out.

Some cases of smallpox have been reported in adjoining municipalities and in a number of places throughout the Province and it is not unlikely that we may eventually have cases of the disease in Port Hope.

There is one sure preventative of smallpox, and that is vaccination. Every person should be vaccinated and re-vaccinated at regular intervals every few years. About three hundred vaccine points have been ordered for the use of the physicians, and already the nurses at the hospital and a number of other persons have been vaccinated. Whether it would be well to take any further action in regard to the matter of vaccination is a question that the Local Board of Health might well take into serious consideration.

We have had very few deaths from infectious diseases during the last six years, and it is significant that we have not had a death from typhoid fever since the year 1916, and no case of the disease has occurred in Port Hope during the year 1919.

In 1913 we had several deaths from diphtheria, since that year I do not think we have had a single death from diphtheria, and as compared with the years previous to 1913, we have had very few cases of the disease. This freedom from the disease is doubtless due to the early use of antitoxin and the careful supervision of the cases.

RENFREW.

Renfrew, Ont., December 8th.

To the Chairman and Members of the Board of Health, Renfrew.

Gentlemen,—I have the honour to submit to you the report of the sanitary conditions of the town and of the Health Department for the year, December 1st, 1918, to November 30th, 1919.

There have been reported during the year the following contagious and infectious diseases: diphtheria, 9 cases; smallpox, 5 cases; typhoid fever, 9 cases; chickenpox, 5 cases; measles, 4 cases; mumps and whooping cough, 3 cases. There have been no deaths from any of the above communicable diseases.

The smallpox cases had their origin out of town and might easily have developed into an epidemic, but by rigid quarantine measures and vaccination of all exposed, the disease was quickly stamped out. An order of the Board, making vaccination of all school pupils compulsory was carried out early in the year, and no doubt has been a factor in the present assurance of smallpox in Renfrew, when there are a great number of cases in other parts of Ontario.

Diphtheria and typhoid cases were also of out of town origin, but were brought here on account of hospital facilities.

The number of cases of communicable disease is a decrease over former years and I am of the opinion that the work of the school nurse has contributed toward this result. Among school children we have always had the greater number of cases, and now that they are under supervision of a competent school nurse, cases are more easily and earlier detected and reported and as a result the other pupils are less exposed to infection.

Sewers which were recommended and approved of for Gladstone Street and Plaunt Park have, in the former case been completed and, in the latter are now being installed.

Frequent water analysis show the town water bacteriologically pure. The chemical treatment is still continued and the question of a better apparatus and method of introduction of the chemical has been taken up and no doubt will be acted upon during the coming year. We are thankful to the Waterworks Department of the City of Ottawa for suggestions and information which they gave us in this matter.

There have been a few complaints *re* nuisances, which have been investigated and remedied, among others that of the town dump, which has been investigated by the Sanitary Inspector and myself. Recommendations for its improvement were made and carried out.

Diagnostic outfits as supplied by the Provincial Board of Health have been supplied to the local physicians and anti-toxins, sera, etc., have been kept on hand and supplied free of charge.

The Isolation Hospital and equipment are in good condition.

During the year there have been reported 176 births and 56 deaths, compared with 200 births and 144 deaths last year.

The sanitary conditions of the town and the health of the community are both satisfactory.

I wish to thank the Board and the Secretary, and the Sanitary Inspector for valuable assistance and co-operation during the year.

James J. McCann, M.D.,
Medical Health Officer.

SIMCOE.

The Chairman and Members of the Board of Health, Town of Simcoe.

Gentlemen,—The following report for the year 1919 which I beg to submit in accordance with the Public Health Act, you will find to compare most favourably with previous years in regard to contagious or communicable diseases generally and a healthy sanitary condition of the town in particular. Comparing our present condition from a public health point of view with that of a few years ago, we should be experiencing an improved standard of health, and conditions as found and reported of later years would seem to justify that condition.

Where formerly our water supply, a very important health item, came from wells exposed to all kinds of contamination, we now enjoy in waterworks a supply kept as far as possible free from contamination, filtered through sand and gravel and subjected to periodical analysis. With a good sewerage system carrying from our midst to be disposed of harmlessly through filter beds, an otherwise prolific source of disease and with both these systems being extended as conditions may warrant, with an extended and improved surface drainage in our streets carrying off storm water and debris from street, factory and alley, these as we all know are indispensable in the matter of obtaining healthy conditions for the public.

Samples of water have been forwarded for analysis when necessary and each report has shown freedom from bacilli and otherwise in a state of purity.

More important than a good water supply is a pure milk supply, and as milk is one of the most, if not the most important article of food that we have, our town has been fortunate for the past year in still maintaining a good supply of pasteurized milk. The process of pasteurizing destroys all bacteria and about 95 per cent. of tubercular germs. When it is known from tests made of herds of cattle that a large percentage are found to prove tubercular it would seem, of course, most essential to adopt some means to eliminate such germs from our milk supply and in the process of pasteurizing we have a very efficient means of doing so. The safest milk would be what is known as certified milk which means that all cows are tested every six months for tuberculosis and those only that are found healthy are milked and those failing to pass the test are branded by a Government agent, which renders them a considerable financial loss to their owner. In consequence of this expense certified milk must be sold at a much higher price.

In taking samples of milk it has been found necessary to collect the same from the various dairy farms supplying milk to our one depot "The Simcoe Sanitary Dairy." There being some fifteen of these it was necessary to collect a sample from each one and with but two exceptions in the different times of submitting samples all were over the required standard in butter fat. In the quantity of foreign matter found in each sample which would apply to the amount of dust or impurities found in filtration a good opportunity was afforded to observe the degree of cleanliness for each one of the various dairies. It was noticed that the clean and well kept cattle and stables were those showing best results in this test.

All dairy farms supplying milk to the Simcoe Sanitary Dairy were inspected, some fifteen in all. Some are in excellent condition with good cement floors, well drained, with manure well looked after, a good water supply, good ventilation, and generally what a first class dairy stable should be. On the other hand some were such as should be improved and kept in a more cleanly condition, the water supply and ventilation in some stables was not as good as it should be.

CONTAGIOUS DISEASES.

Four cases of diphtheria were reported. All recovered, the breadwinners being allowed to continue on with their work where possible to keep the patient apart from the rest of the family and each house was well fumigated after recovery.

One case only of scarlet fever was reported which proved to be very mild.

One case of typhoid fever occurred which is a very gratifying sign after our experience in the past five years when the disease was so prevalent.

Chickenpox.—Ten cases were reported. No deaths.

Smallpox.—None.

Measles.—None.

The comparatively new regulation requiring the venereal diseases to be reported has not operated to that degree of efficiency in our municipality which might be expected. Owing to the fear of semi-publicity which the report of such cases entails there is no doubt that many persons avoid consulting a physician and resort to inferior means for effecting a cure of their condition. The physicians of the town have reported all cases coming under their notice and in some cases it has been found necessary for the municipality to bear the expense of their care and treatment for which we are liable under the "Venereal Diseases Prevention Act."

A great many complaints of nuisances have been received during the year, and in each case the Sanitary Inspector has looked after the matter complained of. One or two cases particularly might be mentioned under this heading. First, that vinegar sold in town was supposed to be the means of having serious poisoning effects when being bottled or otherwise used for preserving pickles, etc. Samples of that complained of were submitted to examination, and forwarded to the Provincial Laboratory for analysis. The sample proved to contain 4 per cent. of acetic anhydride which conforms to the Canadian standard specifying a minimum of 3½ per cent., and a maximum of 10½ per cent. Other tests made proved it to be free of any injurious qualities.

The offensive odors eminating from the grating at the corners on Robinson Street, which have been the source of complaint, are due to the drainage from the canning factory, when preserving certain vegetables as cabbage and cauliflower. Arrangement has been made with the management to dispel any nuisance in this way by flushing out the drains when necessary. These odors, while somewhat offensive, are not liable to cause disease.

The usual spring cleaning notices were printed and distributed to householders by the Sanitary Inspector.

The Provincial Health Department have been most obliging in analyzing all samples sent to them, and have maintained a constant supply of vaccines, serums and also sterilized containers for submitting samples for analysis free of any charge.

Respectfully yours,

J. C. C. GRASETT, M.D.,
M. O. H.

STAYNER.

STAYNER, December 24th, 1919.

Provincial Board of Health, Toronto.

GENTLEMEN,—In submitting my first annual report as M. O. H. for Stayner I am pleased to say that we have been comparatively healthy during the past year.

We have had no deaths from Spanish influenza or any of the other infectious diseases, and we have experienced no serious epidemics.

There were seven infectious diseases reported during the years as follows: diphtheria, 2 in July; whooping cough, 2 in October; scarlet fever, 1 in November; chickenpox, 1 in November; smallpox, 1 in November.

The case of chickenpox reported was later diagnosed as smallpox and was then reported as such. This case of smallpox was of a mild type and the patient has made a good recovery and is now free from the infection.

All those who had been known to have been exposed were quarantined. This disease was supposed to have been contracted from a patient infected in Toronto, and who had been treated for chickenpox.

The water supply was found to have disease producing germs present when an analysis was made in August by your Department.

The reservoir and coffer dam were cleansed immediately and the source of infection removed.

The streets have been kept fairly clean and free from rubbish.

The slaughter-houses are well located and kept in a sanitary condition.

The closets and out-houses were inspected by the Sanitary Inspector and reported on as satisfactory.

All manure and fly breeding material were ordered to be removed or destroyed, which order was invariably complied with.

All of which I beg to submit.

I am, sirs,

Your obedient servant,

A. E. Murphy,
M. O. H.

STRATHROY.

Strathroy, December 15th, 1919.

To the Mayor and Council of the Town of Strathroy.

I beg to submit herewith the annual report of the past year of the Health Board. Statistics indicates births, male, 12, feamle, 26. Deaths, 62. Marriages: Presbyterian, 10; Methodist, 8; Episcopal, 8; Baptists, 5; O.D., 0.

Our death rate appears very high according to our population, but this is explained by the fact that a number of deaths occurring at the hospital are not residents of our town.

Regarding the conditions in reference to the milk supply of this town, I asked at a previous Board for the names and addresses of those that supplied milk to the vendors of this town. I was not granted such information, but at the first meeting of the Health Board we decided that the milk should undergo a certain amount of inspection. According to the first inspection outside of one test all were under 3 per cent. butter fat. Since then we have had inspections periodically and the last inspection indicates 3.8 and the minor 3.6.

In connection with the milk test we have not had either a protein test or a sedimentation test because that certain samples of milk indicate unsanitary conditions during the extraction of the milk. However, this will come during the year.

Regarding the water test of this town, I find it perfectly good, by the reports of samples sent to the Provincial office. We have had one notification of typhoid fever in one household. There were, unfortunately, five cases and one death. In reference to this household I had both a milk and water examination and in each case reports came to me negative. The source of infection I do not know.

The case of scarlet fever was imported from Toronto; due to the carefulness of the doctor in charge there was no further spread nor further contagion.

Regarding the number of cases of influenza in the town, I am unable to say, because the certificates indicate death not from influenza but due to some other complication. However, our town was remarkably free from influenza infection.

Regarding the cleaning up system which we have attempted to adopt, that of cleaning up day on May 15th, everything has been fairly successful. In a few occurrences slight difficulties have arisen, but, however, most wished to do what is approximately right.

In reference to the sewage system of this town I would beg to advise that I find through some contract of the corporation of Strathroy with the Dominion Canning Company, that the above company have been authorized to tap and extend the drainage from their tanks into a storm sewer running down and through their premises; in other words, by a section of the Provincial Act regarding the contamination of streams, such connections may not be made. In reference to this matter, I have communication from the Provincial Health Office verifying my stand. Apparently before my acceptance of the office there has been some trouble in reference to this drain, about which I have no definite knowledge and also I have no knowledge of the contract between the Corporation of Strathroy and the Dominion Canning Company.

But through courtesy the blue prints of the construction indicated that the septic tanks were considered to drain into the afore-mentioned storm sewer. This cannot be done according to information received.

Further, in reference to sewage, on inspection I found that the Post Office cesspool was producing an unsanitary condition. The matter was taken up with the Post Office Department at Ottawa with the result that they installed a septic system according to their engineer's designs, which, so far, has proven quite satisfactory.

In reference to the Grand Trunk Railroad station we have had some meetings with the officials, and they agreed to install a certain system which their engineers recommended that they had installed in all their stations corresponding to our conditions here; I allowed them to install that system with the understanding that were it not satisfactory it should be re-installed at their cost, but so far I have found that their system, as installed, is perfectly satisfactory.

Also the question arose regarding the drainage from the cattle yards which is still under consideration for the matter brings a quite important consideration of the question.

For the next council I wish to recommend a change of the sewage disposal at the public schools of this town. This matter will have to be taken up during the next year. For according to my inspection and the report of Mr. Perkins, the system, as being carried out at those schools is quite satisfactory. However, the matter will have to be dealt with during the next year.

I beg to thank the Health Board, the Mayor and Council for the help they have given me during the present year, and at the present time. Considering the epidemic of smallpox which has developed in the Province I have not felt it necessary to enforce the extreme regulations of the Department. But should I consider it necessary to recommend compulsory vaccination, I would hope for the unanimous support of this council, or the incoming council.

All these things are submitted for your serious consideration by your obedient servant.

C. H. McDougall,
Medical Health Officer, Strathroy.

SUDBURY.

Sudbury, Ont., September 30th, 1919.

The Chairman and Members of the Board of Health, Town of Sudbury.

Gentlemen,—We have the honour to submit the report of the sanitary work done under your Board from December 1st, 1918, to September 30th, 1919.

The total number of loads of garbage and other waste delivered at the incinerator were as follows:

Garbage and other waste, 2,836 loads; horses, 10; cows, 6; calf, 1; deer, 1; hogs, 3; carcasses mutton, 2; quarters of beef, 3; 4 cases of sausages; 15 cases of raspberries.

The incinerator has been working continuously but has proved for the last few months to be unable to handle all the garbage. Already in 10 months we have delivered 250 loads in excess of the previous 12 months, and taking the average of the last 5 months will represent slightly over 1,200 loads in excess of last year. It will be essential early in the year to erect a new incinerator and we would strongly recommend one to burn the night soil, manure and all animals. The garbage contractor has fulfilled his work well, although at times the question of removing rubbish other than garbage has arisen. The occupants at clearing times fill up their cans and other receptacles with waste, mixing the garbage, and expecting the town to clean it up. It would be well in future, when the general clean-up is advertised, to make some provision to take up all waste and rubbish at the time of the campaign. The night soil has been well handled and regularly done, again this has been at times difficult to satisfy all, owing to the house shortage, families are living more closely without any extra provision made to the outside premises. The contractor has at all times been willing to meet any extra cases that have come to our notice. During the year we had about 25 new privies built to replace old and unsanitary ones. There are yet a few more to be handled in this early spring owing to shortage of labour this has been a difficult work to have done.

Collections for the year were:

By cash	$1,831 40	
Outstanding account	150 80	
		$1,982 20
Amount paid contractor		1,648 25
Credit to town		$333 95

Plumbing Permits.—One hundred and fifty-five were issued, 55 being for new connections and 100 alterations, additions and repairs. All this work was inspected and completed satisfactory.

Water.—Fifty-eight samples were taken and few of which show slight contamination, especially after chlorination. The new plant has been installed and gives satisfactory results.

The lake campers have been good, all realizing how important it is that the town water supply should be protected, which is a very difficult matter considering that Ramsay Lake is the only summer resort we have, and each year grows more popular. Unfortunately, some 5 camps were erected on the north shore, and however careful the residents are, owing to the buildings being practically on the water edge and all rock, they cannot but pollute the water supply. Something further will be necessary early in the year, either by removing the camps or have them connected to the sewer, or in some way made so that it is impossible for any waste to enter the water supply.

Milk Supply.—Eighty-two samples were taken, the average butter fat being 3.50 per cent. The cleanliness which is so very important has been well maintained. Any samples showing dust have been notified and improvement shown. The dairies have been regularly inspected and cows and stables been most satisfactory.

Food has been well handled, very little meat, fruit, etc., have been seized and destroyed and only some 60 loaves of bread taken under weight, which goes to show the merchants are more careful with the handling of food.

Infectious Diseases.—There were 12 cases of scarlatina and 3 of diphtheria, all of which were quarantined and released after the regular period. There is one case of scarlatina in town at present.

We again wish to draw the attention of the Board to the important question of an isolation hospital. At present there is no provision should any serious outbreak occur in the town. The present pest house should be destroyed forthwith, being unsanitary and unfit for occupation.

Prosecutions.—It is satisfactory to note the few prosecutions we had to take, only 7 cases in all before the magistrate. All were convicted. Six were fined and one case suspended sentence. Total fines were $18.00.

During the year the regular inspection of lodging houses, restaurants, abbatoirs, fruit stores, lanes and yards have been regularly made, and we hope the foregoing report and figures given, namely, a 20 per cent. increase in garbage and night soil collection, yet a decided decrease in prosecution, will meet with your approval.

We have again to thank the Town Council, Board of Health, and general public for the help and courtesy given us in the performance of our duties.

We have the honour to be, gentlemen,

W. J. Cook,
Medical Officer of Health.
James Taylor,
Sanitary Inspector.

Sudbury, Ont., December 15th, 1919.

The Chairman and Members, Board of Health, Town of Sudbury, Ont.

Gentlemen,—We have the honour to submit the report of sanitary work done under your Board from October 1st to November 30th, 1919.

The total number of loads and garbage and other waste delivered at the incinerator is as follows:

Garbage and other waste, 483 loads.

Horses, 3; calves, 3; beef, 400 pounds.

The incinerator is not large enough and should be enlarged as soon as possible.

The night soil is being handled as well as is possible under existing arrangements, but the proposal to keep men on this work permanently will give perfect service.

Collections for the two months were:

Cash	$339 80	
		$339 80
Paid to contractor		$413 64
To be collected		73 84

Water Samples.—Eighteen samples were taken and the reports proved the supply to be quite satisfactory.

Milk Supply.—Eighteen samples were taken during this period and where dirt and dust was found, the dealers concerned were at once notified.

Dairies have been inspected and cows and stables were satisfactory.

Food has been well handled and only in one case has meat been seized and destroyed.

Infectious Diseases.—There have been two cases of scarlatina during this period and twelve cases of smallpox. The premises were in all cases quarantined the required period.

Plumbing Permits.—Forty-one permits were issued. Twenty-eight were for new connections to the sewer and the remainder were for alterations and repairs.

The regular inspection of lodging houses, abbatoirs, fruit stores, restaurants, etc., has been made.

With thanks to the Town Council, Board of Health and general public for the help and courtesy given us in the performance of our duties.

We have the honour to be, gentlemen,

W. J. Cook,
Medical Officer.
F. Rotheny.
Sanitary Inspector.

THOROLD.

The Board of Health met in the Library, there being present, L. B. McCleary, A. B. Begg and Dr. Campbell.

On motion of Mr. Begg and Dr. Campbell, Mr. McCleary was elected chairman.

Moved by Mr. Begg, seconded by Mr. McCleary, that the salary of the Medical Officer of Health for 1920 be $200. Carried.

Moved by Mr. Begg, seconded by Dr. Campbell, that the salary of the garbage collector be $95 per month. Carried.

Dr. Campbell, Medical Officer, read the following report, which was received and adopted:

Gentlemen: During the year 1919 there have been reported the following cases of contagious disease:

	Cases	Deaths
Smallpox	10	0
Scarlet fever	4	0
Diphtheria	5	0
Whooping cough	22	1
Typhoid fever	0	0

A number of cases of influenza occurred in the early part of the year, but by that time the epidemic was about "burned out."

My reason for mentioning the typhoid record is that I may congratulate the Board and the Town Council on the fact that since the latter installed our chlorinating plant not a single case of typhoid fever has been reported to me which was traced to our water supply. This is also a tribute to the watchfulness and efficiency displayed at the pumping station, as you all know our water supply is bad when unchlorinated. and I hope the Government will now soon give us the promised pipe-line from Lake Erie.

There is room for improvement in the attention that stable owners are giving to the care of stable manure during the summer months. I think we should enforce the regulation covering this subject more rapidly.

I wish to state that the interest displayed by all members of this board, and regular attendance at meetings, are sure to produce results.

There is at present only one house in town placarded, and, thanks to the co-operation of the medical attendants and families of the patients, we have not in the past year had a single case of contagious disease due to exposure to any patient under quarantine in the Town of Thorold.

WALKERTON.

WALKERTON, ONT., December 22nd, 1919.

Secretary, Provincial Board of Health, Toronto.

DEAR SIR,—I beg to enclose copy of the report of the Medical Officer of Health of the Town of Walkerton, for the year 1919. The report was presented to the Town Council, and at the meeting of the Board of Health on Saturday, I was instructed to forward a copy of this report to you, and to state that ever since our Milk By-law was passed, over two years ago, a regular inspection of the herds from which the town milk supply is obtained, and also of the premises where the cows are kept, has been made. In our Milk By-law, Dr. A. G. Fortune, a veterinary surgeon, was appointed as inspector and the Council this year paid him a bill of $64.00 for inspections. This was not known to the Medical Officer of Health at the time he made his report to the Council, and the Local Board of Health thought I should mention the fact when sending the doctor's report.

Yours truly,

A. COLLINS.

December 6th, 1919.

To the Mayor and Council of the Town of Walkerton.

GENTLEMEN,—In making my usual report respecting the health condition of the town, I am pleased to be able to say that with the exception of about the first two months of the year, when the influenza epidemic was still present, but in a much less virulent form than during the last months of the previous year, we have been quite free from all disease of a contagious character. I have not heard of a single case of diphtheria or typhoid fever in the town. I think there was a case of the latter disease in the hospital, but if so it came from some place outside of Walkerton. I think the people of Walkerton are supplied with good wholesome milk, but still I think the herds which supply us with milk should be inspected by a veterinary surgeon every few months to see that the animals are all healthy, and if they are, pretty good evidence is furnished that some of them are suffering from bovine tuberculosis, a disease more necessary to guard against I think than any other. Milk is an article of food that is taken a good deal of the time in a raw state, and if it contains germs of disease, they are taken into the system alive and capable of doing damage. Diphtheria and typhoid germs have been passed around by the milk, owing to one or other of said diseases being in families supplying the milk. If anything of that kind happens the supply from that source can be cut off as soon as we find out about it. I know of no way of finding out in advance when such a disease is going to appear.

Your obedient servant,

(Sgd.) R. T. PORTER.
M. O. H.

WATERLOO.

WATERLOO, ONT., December 3rd, 1919.

To the Mayor, or Chairman, and Members of the Board of Health.

GENTLEMEN,—I have the honour to present herewith, the report of the Board of Health for the year 1919.

Forty-eight deaths occurred during the period covered by this report, which is at the rate of 9.60 per 1,000 of the population, and compares most favourably with the average per 1,000 for the Province.

Of communicable diseases, but 10 cases were reported, of which number, diphtheria contributed 2, with 1 death; scarlet fever, 3, with 1 death; tuberculosis 5, of which 4 were fatal.

It is very gratifying to report that there has been no recurrence of Spanish influenza during the year. Two deaths in January marked the end of the great epidemic, long to be remembered as the most appalling in history. Owing to the favourable sanitary conditions prevailing, our isolation hospital has been untenanted, and as a result, the cost of maintenance has been a negligible amount.

The milk was regularly tested according to the custom of former years, with very satisfactory results as a rule. You are probably aware that the milk vendors here, have no facilities for pasteurization. There are undoubted advantages in this treatment of the milk supply, but there seems to be no necessity for its adoption, in view of the fact that the standards of the milk, and of the source of supply, have been very well maintained.

The perennial nuisances have been satisfactorily disposed of, and for some time, no complaints have been made.

In my report of last year, I advised the Board to negotiate for a resident member of the Victorian Order of Nurses. After the advantages and the benefits to the town were brought to the attention of the Mayor and Council, the sum of $400.00 was unanimously voted, and thereafter steps taken to inaugurate this boon. After some delay which was due to the scarcity of nurses, Miss Symonds was sent on the 1st of September, and I am pleased to report that her work has been of a high order, and is being more and more taken advantage of by the people. In this connection, I wish to draw your attention to an arrangement, whereby the schools of the town are visited twice a week by Miss Symonds, who reports to the Principal and Board of Trustees, cases requiring medical and dental care. I am of the opinion that this service will be very beneficial, and more particularly when its scope has been enlarged to include the testing of eyesight and hearing.

The local branch of the Victorian Order, under the energetic presidency of Mrs. A. Learn, has undertaken to provide additional funds to "carry on," and I hope that the appeals for aid will be cheerfully met on the plea of mercy for the afflicted, and loyalty to the local endeavours in the furtherance of a good cause.

Your attention is also called to the unsatisfactory system of garbage collection and disposal. The time is approaching when a more up-to-date method will be required, and the solution probably will be incineration. Whenever a change is contemplated, I would suggest placing the service under direct municipal control, so that all citizens may have the benefit of this important service, at actual cost.

In conclusion, I beg to thank the Chairman, members and Secretary of the Board, also the Sanitary Inspector, for hearty co-operation in the work of the year.

Respectfully submitted,

C. T. Noecker,
M. O. H.

YORK TOWNSHIP.

40 Jarvis Street, Toronto, December 1st, 1919.

Secretary, Provincial Board of Health, Parliament Buildings, City.

Dear Sir,—Pursuant to the provisions of the Public Health Act, Chap. 218, Section 23 (2) R.S.O. 1914, I beg to report that the Local Board of Health for the Township of York held, during the year 1919, eleven meetings.

Our Sanitary Inspectors, comprising one for the eastern portion and one for the western portion of the Township of York, duly appointed by the Council of the Township of York, attended the meetings of the Local Board and reported upon work done by them, also upon the general sanitary condition of the Township in each of their respective districts.

I might explain that the existing waterworks system of the Township of York throughout the western portion of the township has become fairly well advanced, thus creating a much more desirable condition of affairs from a sanitary standpoint than has existed in the past. The Council some time ago instructed the engineers for the municipality to make a thorough investigation of the eastern portion of the Township of York with a view to installing water and sewage system.

Building throughout the township this year has been on a large scale, the Building Inspector reports that over four million dollars worth of permits have been issued since January 1st, 1919. Thus you will see that every sanitary improvement possible to secure, is necessary to assist in obtaining a perfectly satisfactory condition of affairs.

The sanitary condition of the township, as you will observe by the report of the M. O. H. of the municipality (copy of which is attached hereto) notwithstanding the influx of people to the township, is very satisfactory. An epidemic of smallpox is prevalent at the present time throughout the township; also the number of cases of scarlet fever is fairly large for the current year, although there have been no deaths reported from either up to the present time. This, with a population of approximately 36,000 and being contiguous to the City of Toronto we feel that the aforegoing is a fairly satisfactory record.

All of which we respectfully submit.

Yours truly,

Jno. T. Watson,

Chairman, Local Board of Health.

Toronto, December 1st, 1919.

The past year has been uneventful from the standpoint of contagious diseases, save for the month of November when it became known that smallpox was becoming epidemic and more severe in nature. Cases became so prevalent that to quarantine homes according to statutory regulations would tie up the whole community, and as a consequence the Vaccination Act was brought into force. The Provincial Legislature has made it incumbent upon the Medical Officers of Health to use this means of prevention in case of impending epidemics and there seemed to be nothing else for us to do but to obey the law and we did it feeling it was a duty and a privilege. In Mount Dennis and Swansea so many had this mild type of the disease that the schools were closed and all children were to be vaccinated before returning at the end of two weeks. At Fairbank the trustees of the school consented to have the children vaccinated, owing to the fact that about 1,000 pupils had never been vaccinated. Newtonbrook, Bathurst St. S.S. No. 14; Huron St. School. Humewood, Glen Holme were similarly done, with the consent and approval of the trustees. Todmorden trustees are holding out against vaccination, but smallpox is developing amongst the children, and it may yet be necessary to close the school there and do the same as was done at Mount Dennis.

It is reasonable to assume that in a district comprising thousands of people, most of whom have been recently vaccinated the usual deaths continue.

Two weeks after being vaccinated one child died of a disease that is invading many centres, and taking the life of one here and there. Sleeping sickness has been claiming victims ever since the Spanish influenza and according to the leading child physicians of Ontario, this was the cause of death in the case of Arthur Smith, Denevar Road.

Cases reported during the year 1919 were as follows:

Scarlet fever	54
Diphtheria	33
Smallpox	31
Tuberculosis	2
Measles	1
Spinal meningitis	1

A. J. Prentice,

Acting M. O. H.